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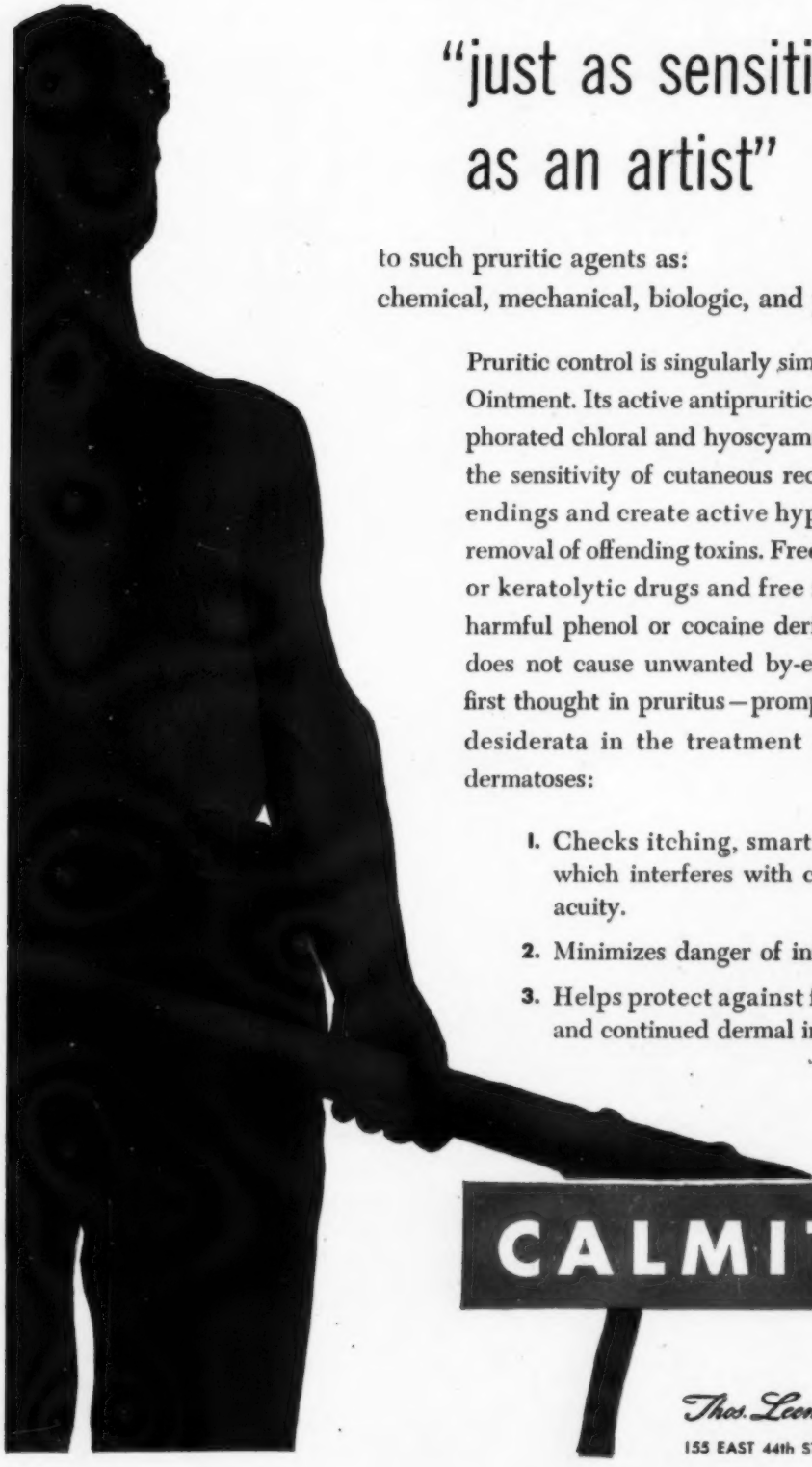

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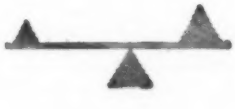

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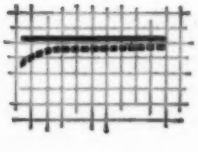

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COLLIERS Magazine for July 24, 1948, has an article entitled "Does Your Job Make You Sick?" which tells of a number of psychiatrists in industry, among them DR. WALTER D. WOODWARD, American Cyanamid; DR. FREDERICK DERSHIMER, du Pont; DR. LYDIA G. GIBERSON, Metropolitan Life. The author quotes DR. GIBERSON: "An accident is a telltale symptom of emotional disturbance, temporary or permanent."

DR. GRAHAM TAYLOR, of the Allan Memorial Institute of Psychiatry, Montreal, has been selected as the first Industrial Psychiatry Fellow in the School of Industrial and Labor Relations at Cornell University. The Fellowship is part of the school's new program to train psychiatrists for the industrial and labor relations field. The project, originated by DR. ALEXANDER H. LEIGHTON, Cornell psychiatrist, is supported by a grant from the Carnegie Corporation. DR. TAYLOR will begin a two-year program at the school in September. He will divide his time during the Fellowship between studies and research on the campus and first-hand investigations in industrial plants. DR. TAYLOR, 29, and a native of Canada, is studying at Allan Memorial Institute under

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the distinguished psychiatrist, DR. D. EWEN CAMERON. He was graduated from McGill in 1939 and took his M.D. there in 1943. He later served a rotating internship in Montreal hospitals before joining the Royal Canadian Navy.

DR. LAWRENCE WEAVER, Associate Professor in Industrial Medicine at the Medical College of Virginia (Richmond), and Medical Supervisor in the Rayon Division of DuPont Company, was recently elected a fellow in the AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE. DR. WEAVER is a graduate of Randolph-Macon College and the Medical College of Virginia. He has been active in research in the field of industrial and related medicine, and has written several articles for leading magazines. He joined the faculty of the Medical College of Virginia as an instructor in industrial medicine in 1940.

LEVERETT D. BRISTOL, M.D., Bethayres, Montgomery County, health director, American Telephone and Telegraph Company, 1929-43, has been appointed Chief of the Cancer Control Division, State Department of Health, to fill a vacancy created several months ago by the resignation of ROBERT F. MCNATTIN, M.D., Harrisburg. Born in Chicago, DR. BRISTOL was graduated from Wesleyan University and received his degree at Johns Hopkins in 1907. In 1917 he received the degree of Doctor of Public Health for post-graduate work at Harvard. DR. BRISTOL has had wide experience in the field of cancer. He served as instructor of pathology and bacteriology at Syracuse University, and then practiced medicine for a number of years in St. Paul, Minnesota. He was director of the North Dakota Public Health Laboratory, professor of preventive medicine and public health at the University of Minnesota, and from 1917 to 1921 served as head of the Department of Health in Maine. He has devoted considerable time to cancer research and has organized state cancer committees in North Dakota and Maine. Several years ago he was chairman of a special laboratory committee of the American Society for the Control of Cancer, now the American Cancer Society. WHO'S WHO IN INDUSTRIAL MEDICINE says of DR. BRISTOL that he is "distinguished for his interest in, and his effective organization and

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*Lockhart, E. E.; Harris, R. S.; Tapia, E. W.; Lockhart, H. S.; Nutter, M. K.; Tiffany, V., and Nagel, A. H.: J. Diet. Assn. 20:742 (Dec.) 1944.

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American Association of Industrial Dentists, 4604 South helsea Lane, Bethesda 14, Maryland. V. J. FORNEY, D.D.S., Secretary-Treasurer.
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American Association of Industrial Nurses, 654 Madison Ave., New York 21, N. Y. GLADYS L. DUNDORE, R.N., Executive Secretary.
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American Conference of Governmental Industrial Hygienists, U. S. Public Health Service, Washington, D. C. J. J. BLOOMFIELD, Secy-Treas.
Early April, 1949; Detroit.

American Industrial Hygiene Association, 4400 Fifth Ave., Pittsburgh 13, Pa. HENRY F. SMYTH, JR., Executive Secy.
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American Medical Association, Council on Industrial Health, 535 North Dearborn St., Chicago 10, Ill. CARL M. PETERSON, M.D., Secretary.

establishment of, public and industrial health programs." He is the author of the widely known book "Industrial Health Service" (Lea & Febiger, 1933), and of numerous articles on industrial health subjects.

DR. EDWARD P. HELLER, of Kansas City, widely known railroad surgeon and medical adviser for numerous industrial concerns, was killed in an automobile accident about 15 miles south of Chadron, Nebraska, on Thursday, August 19. DR. HELLER, his wife, his son Thomas, and a married daughter were on their way to the Black Hills when, for some reason not yet known, their car overturned. DR. HELLER was killed instantly; the other occupants of the car are in a hospital at Chadron and are reported in serious if not critical condition. DR. HELLER was a director of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS. He was several times an officer of the ASSOCIATION OF RAILWAY AND INDUSTRIAL PHYSICIANS AND SURGEONS OF KANSAS CITY; it was largely through his inspiration that this Association was formed and became a component society of AAIP&S. He was born at Allentown, Pennsylvania, in 1892, attended Jefferson Medical College, and interned at Lankenau Hospital, Philadelphia. He had been in railroad and industrial medical work since 1922. He was the author of numerous medical and surgical articles, and for a time was Editor of the JOURNAL OF THE JACKSON COUNTY MEDICAL SOCIETY.

American Medical Association, 535 North Dearborn St., Chicago 10, Ill. GEORGE F. LULL, M.D., Secretary & General Manager.
Interim Session, November 30-December 3; St. Louis.

American Public Health Association, 1790 Broadway, New York 19, N. Y. REGINALD M. ATWATER, M.D., Executive Secretary.
November 8-12, 1949; Boston.

Association for the Surgery of Trauma.

Canadian Public Health Association, Vancouver, B. C., Canada.

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Industrial Hygiene Foundation of America, 4400 Fifth Ave., Pittsburgh 13, Pa. JOHN F. MCMAHON, Managing Director.
November 17-19, 1948; Pittsburgh.

International Association of Industrial Accident Boards & Commissions, MARSHALL DAWSON, U. S. Dept. of Labor, Washington, D. C., Secy-Treas.
September 12-18; New York.

Lead Industries Association, 420 Lexington Ave., New York 17, N. Y. ROBERT L. ZIEGFELD, Secretary-Treasurer.
November 15-16; Chicago.

National Council on Rehabilitation; Secretary-Treasurer: MR. HOLLAND HUDSON, 1790 Broadway, New York 19.

National Metal Congress, Philadelphia.
October 25-28; Philadelphia.

National Rehabilitation Association, 411-7th Ave., Nashville 4, Tenn. LOUIS R. SCHUBERT.
December 6-10, 1948; Madison, Wis.

National Safety Council, 20 North Wacker Drive, Chicago 6, Ill. NED H. DEARBORN, President; CARMEN FISH, Secretary.
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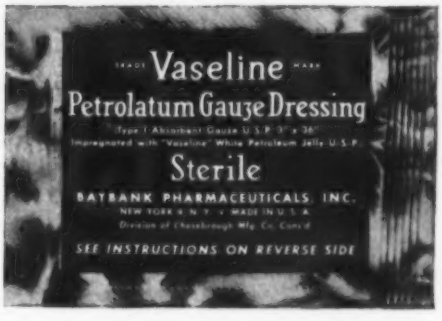

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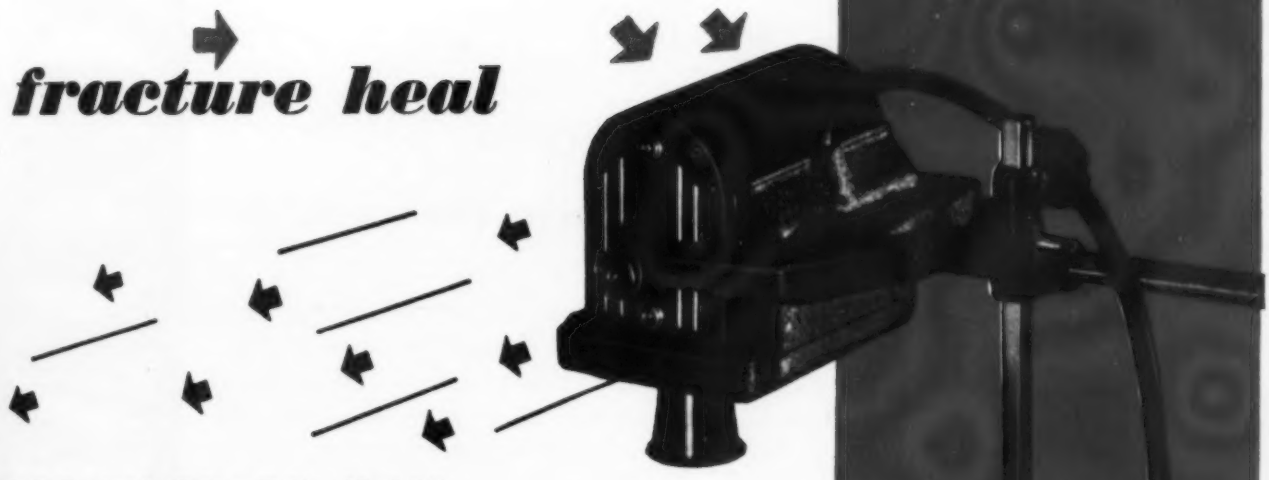

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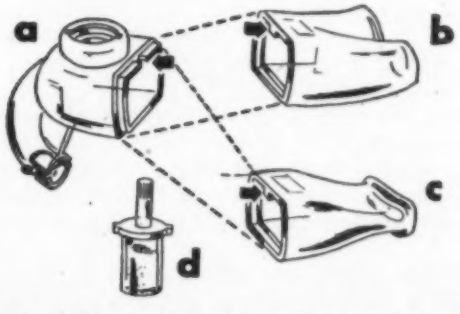
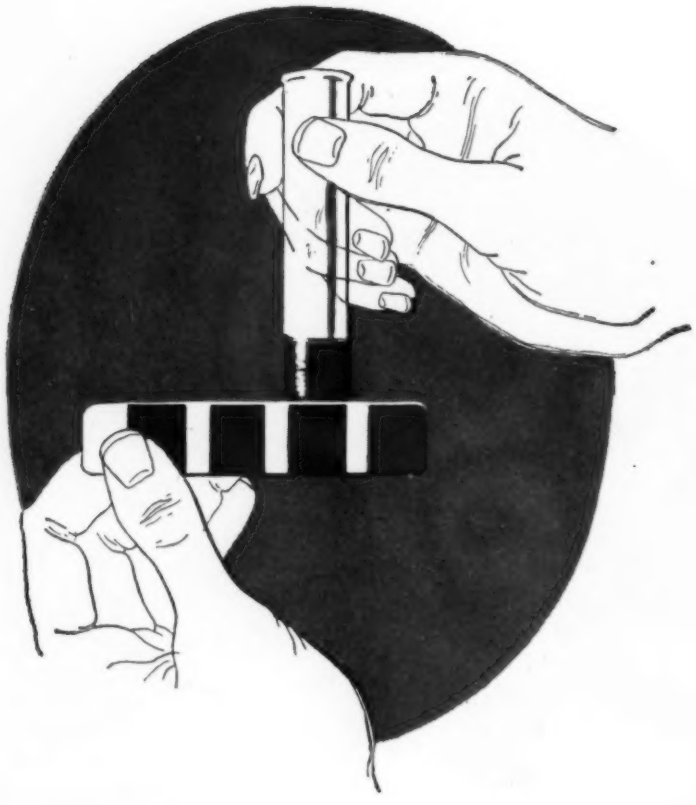


(a) Discharge chamber is attached either to (b) Mouthpiece or (c) Nosepiece for use with (d) Abbott Sifter Cartridge.



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INDUSTRIAL MEDICINE

Volume 17 SEPTEMBER 1948 *Number 9*

Modern Methods of Resuscitation

THOMAS M. THOMPSON, M.D., M.P.H.,
Trenton, New Jersey

ONE of the greatest sources of gratification to those who engage in the practice of medicine is concerned with the wonderful discoveries and advances which have throughout the history of medicine resulted in the prolongation of human life and the amelioration of suffering. As medical knowledge and understanding have increased, there has been a concomitant, gradual and natural development of an ever increasing tendency towards individual specialization in various fields of medical practice. This specialization, in itself, has been highly desirable if for no other reason than that it is in this way that the greatest rate of advancement in medical knowledge has been achieved.

It must be recognized, however, that this same tendency towards specialization has also been productive of a progressive divergence in the thinking and attitude towards certain subjects by the medical profession on the one hand and by the laity upon the other.

We are prone to think of our colleagues in terms of their medical specialties and refer to them as such. The laity, on the other hand tends to place more emphasis upon that single qualification common to all of us, namely the possession of the degree of Doctor of Medicine, and to regard us first of all and collectively as "Doctors" and only secondarily as specialists in various branches of medicine.

Thus it is that in any emergency which presents a threat to human life any layman is immediately overwhelmed with an urgent desire for the services of a doctor, any doctor. Under these circumstances the choice of the physician is dictated entirely by proximity, and no consideration is given to the matter of whether or not in his usual endeavors the individual physician is routinely called upon to handle such situations.

In recognition of the fact that perhaps the most urgent of all emergencies are those which involve asphyxia, and that all of us, as physicians, are expected by the general public to be capable of adequately meeting such situations, it is felt that great effort should be made to keep abreast of the times in relation to resuscitation.

The purpose of this paper is to attempt to make a realistic evaluation of the advantages and the disadvantages of the three general types of resuscitation presently in use, and to indicate that no one of the three is to be totally preferred, but rather a combination involving all three will provide the optimum solution to all resuscitation problems.

For the purpose of convenience in discussion, the various manual methods of artificial respiration will be considered as a group. In this group the method originally described by Schafer and widely known in both the medical profession and the laity as the Schafer Method has been selected as the representative method for the group.[1] Most of us are more or less familiar with this method which consists essentially of placing the patient in the prone position and then applying manual compression to the caudal portion of the posterior aspect of the thoracic cage intermittently with abrupt termination of the compression phases. Obviously the efficiency of this method in ventilating the lungs is almost entirely dependent upon the elastic recoil of the lungs and of the thoracic cage. A great deal has been written, much of it controversial, concerning the amount of air which can be caused to be inspired and expired by this method. Measurements performed on conscious, normal human subjects indicate that an entirely satisfactory amount of air can be exchanged by this method. On the other hand experiments on moribund, and unconscious subjects clearly show that the tidal flow of air under these conditions is at best inadequate, and certainly could not be regarded as being optimum in meeting the conditions of anoxemia and carbon dioxide accumulation which are always to be expected when artificial respiration is required. Indeed, Comroe and Dripps, in a well conducted experiment found that under these circumstances the best tidal air exchange that could be achieved was measured as 117 cc. of air in one subject and only 95 cc. in another, this constituting about one fourth or less of the normal tidal exchange in an adult at rest.[2]

The primary purpose in giving artificial respiration is centered around the hope that life can be temporarily maintained until the patient begins to breathe for himself. This immediately predicates the thought that enough oxygen must be supplied through the blood stream to the respiratory center in the brain to prevent serious damage to it.

Thus if we presume that an initial period of asphyxia precedes the commencing of artificial respiration, we must conclude that the require-

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ment of oxygen at the respiratory center has been increased. At this point it becomes clear that the old and time-honored emphasis upon the giving of the Schafer method at a slow rate (15 to 18 cycles per minute) only serves to render an already inadequate method even more inadequate. It is advised that the rate be stepped up, and that it be given as fast as can be done and still secure maximal ventilation per cycle.

Realizing that some readers may still continue to believe that a regular rhythmic rate of 15 cycles per minute should be insisted upon in the teaching of the Schafer method of artificial respiration, the author suggests the following brief, simple and informative experiment:

1. While looking at the second hand of a watch, refrain from breathing for a period of one or two minutes, depending upon the limit of endurance.

2. Then resume breathing at a rate of one cycle every four seconds, trying to keep the volume near that of your normal excursion at rest (400-500 cc.), and note the very definite and persistent subjective discomfort and feeling of impending asphyxia.

Tingley writes that the rate of giving the Schafer method can be greatly increased, even by as much as four times, without loss of efficiency as measured by the volume of individual inspirations.[3] He points out most of the experimental work in the use of the Schafer method has been limited to the milder degrees of asphyxia in which there was not even loss of consciousness, and concludes that the need for oxygen is many times greater in patients with the deeper degrees of asphyxia which are actually encountered in emergencies in which breathing has been suspended.

In recent years a different method of resuscitation has been developed by Frank C. Eve, M.D., F.R.C.P., of Hull, England.[4] The Eve method, which has also been variously described as the "tilt table" or "teeter-totter" method, is based upon the principle that when a patient's head is lowered, the weight of the abdominal contents presses against the diaphragm which in turn raises the intrathoracic pressure and expels air from the lungs; while when the head then is raised the weight of the abdominal contents falls away from the diaphragm permitting it to undergo a caudad excursion which produces a fall in intrathoracic pressure causing air to be inspired.

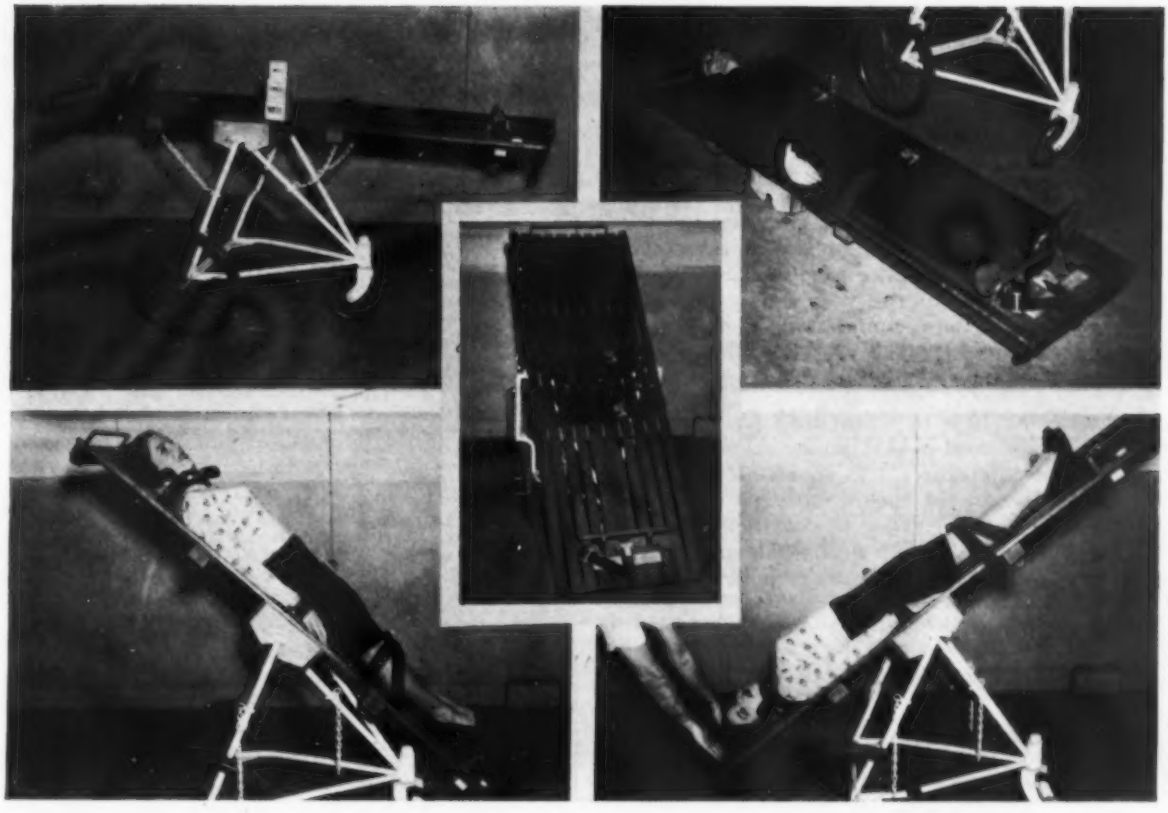
The Eve method is based on sound principles of physiology and has been subjected to investigation by competent observers. The present concensus of opinion is that the tidal exchange of air is considerably greater with the Eve than with the Schafer method.[5] Indeed, in the previously mentioned experiments of Comroe and Dripps the tidal flow of air was between three and four times greater with the Eve method than with the Schafer method.[2]

In addition, proponents of the Eve method claim that it also acts, through the force of gravity, to greatly assist the failing blood circulation and it should be noted that this claim would seem to be well supported by the anatomic and physiologic factors involved. In this respect the downward tilting of the head is stated to bring freshly oxygenated blood to the respiratory center and other vital areas of the brain, and also bring blood into the right side of the heart from the inferior vena cava and its major tributaries. Conversely, the tilting of the head upwards is believed to assist in the return of venous blood from the head to the heart, and also aid the coronary circulation with benefit to a severely taxed myocardium.

Furthermore, the author has recently participated in the development and use of a mobile adaptation of the Eve method, in which a demountable stretcher is supported upon a three wheeled carriage. This adaptation provides the additional advantage of permitting continuous resuscitation while transporting a patient from the scene of an accident to a center where still further restorative measures may be conveniently employed. The device is portrayed in the accompanying illustrations, being rather simple in design and of inexpensive construction. Only two adjustments are necessary in order to adequately secure a person of any stature upon the table. We have found it possible to place a patient on the stretcher, make the necessary adjustments for height and to prevent buckling, and actually begin resuscitation in less than seven seconds. Some of the advantages of this method when compared to the Schafer method have already been discussed. Two major disadvantages are that it does require special equipment, although this may be very simple; and it requires a minimum of two persons to begin it as compared with a single operator to start the Schafer technique.

It may be stated at this point that the Schafer method has been much more widely taught than the Eve method, notably by the Red Cross and other organizations in this country. However, the Eve method is currently used in both the British Navy and the United States Navy.

Thus far we have concerned ourselves chiefly with the problem of producing adequate pulmonary ventilation in order to maintain a degree of oxygen saturation in the blood which is compatible with life. Another factor of tremendous importance is the problem of keeping down the carbon dioxide level in the blood and tissues. Several writers have called attention to the narcotic properties of carbon dioxide when its concentration rises above rather low levels, and have pointed out that these concentrations are rapidly exceeded in respiratory arrest.[2,6] In this connection it should be noted that the greater tidal air flow which can be achieved with the Eve method as compared with the Schafer method will also make the first named method relatively more effective in lowering the level of accumulated carbon dioxide and thus provide a more rapid release of the patient from its narcotic effect.



The third general type of resuscitation which is widely used at present involves the use of the mechanical resuscitator. These are marketed in this country by several different concerns, and for the most part employ a closed system with alternating positive and negative pressures using pure oxygen. The advantage inherent in the use of pure oxygen instead of air in combating asphyxia is obvious. Some observers have stressed the possible danger of damage to the pulmonary tissues from too great ranges of pressure.[7] However, rather careful studies have demonstrated that the pressures commonly used in these devices as marketed today are perfectly safe in normal individuals and indeed are frequently exceeded by pressures produced in the individual by such acts as coughing or sneezing. They alternate between a positive pressure of fourteen millimeters of mercury at the end of inspiration and a negative pressure of nine millimeters of mercury at the end of expiration. Animal experimentation has demonstrated that these pressures are actually less than half of those produced when the airway is intentionally blocked.[8,9] Also there is strong evidence which indicates that positive pressure respiration is of real value in combating pulmonary edema.[10] Thus it is seen that one great advantage of the mechanical resuscitator of the alternating positive-negative pressure type as compared to the Schafer as well as the Eve methods is that pure oxygen is substituted for air.

There is also another advantage in that as the patient lies quietly in the supine position while under treatment with the mechanical resuscitator it is possible to simultaneously administer plasma or cardio-respiratory stimulants by the intravenous route when indicated. It is also possible to attempt to combat cardiac standstill if it occurs. The prolongation of life by rhythmic manual compression of the heart has been described, and when combined with certain other heroic measures a temporary restoration of cardiac function in greater or lesser degree has been effected.[11] Obviously this procedure is limited in that it can only be attempted by those who are skilled in thoracic surgery and under ideal operating conditions.

Another method of treatment of cardiac arrest, deserves mention if for no other reason than that it offers a wider latitude of application.[12] This involves the intracardiac injection of epinephrine solution. The use is recommended of a rather stiff four and one-half inch needle which should be directed in a mesio-caudad direction entering just to the right of the sternum in the third or fourth intercostal space. Either one or both of two factors may operate to stimulate the resumption of cardiac action, that is, the actual traumatic stimulus of the piercing of the right auricle by the needle, or the effect of the infiltrated drug. The use of the above described anatomic approach to the right auricle is recommended on the theory that if the stimulus should produce a fibrillation effect, it might be auricular and thus compatible with life, instead of being ventricular and lethal in outcome.

Mention is also made of the fact that with the patient receiving mechanical alternating positive-negative pressure resuscitation, or even while receiving treatment by the Eve method and in the supine position on the tilt-table, the physician is better able to determine the status of cardiac activity by precordial auscultation, than when the patient is in the prone position under the Schafer method. It may be argued that the prone position is to be preferred to the supine position in the Eve method in case of drowning, in order to drain the fluid from the respiratory passages. It is our opinion however, that adequate gravity drainage will be obtained in the supine position if the initial angle of tilt is 45° with head down.

CONCLUSION: It is apparent that no single type of resuscitation is best under all possible circumstances, therefore, the physician should be thoroughly aware of the advantages and disadvantages of each in order to obtain the best results in the handling of asphyxial emergencies.

[Note: In the upper left picture on the preceding page, the wooden blocks shown on the stretcher table were used to provide visualization of the comparative amounts of 340 cc. maximum tidal flow with the Schafer method with the 500 cc. normal tidal flow of an adult at rest and the 580 cc. which has been achieved using the Eve method.]

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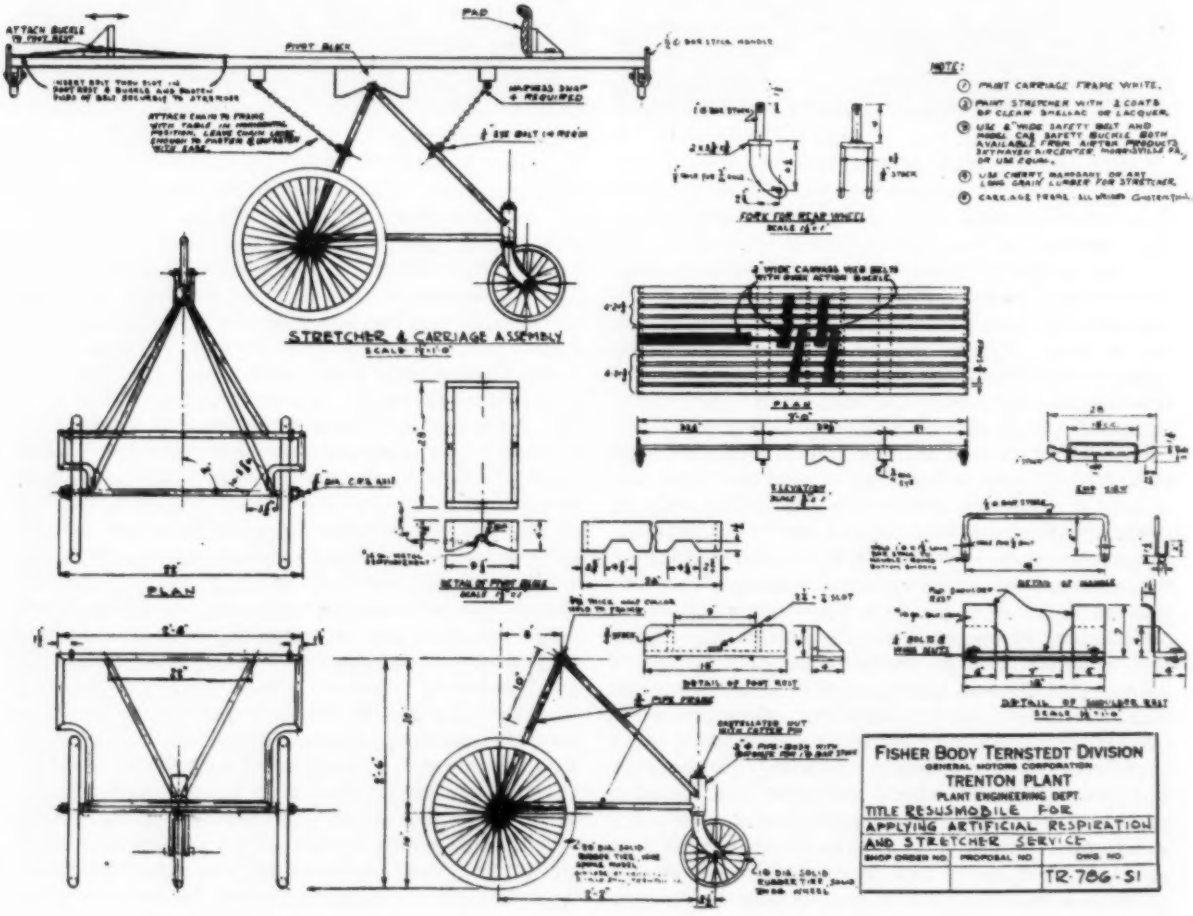

The Treatment of Industrial Backaches
—By Progressive Fascial Ligamentous Loosening—

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THE PURPOSE of this paper is to present the results obtained in the treatment of industrial backaches which were seen during the past year.* Many additional private cases were treated, but the results of these cases are not being presented at this time. The method of treatment used was that advocated by Billig,[1,2] based upon progressive fascial and ligamentous loosening.

The variety of cases treated was very representative; many cases being so severe that it was necessary that the patient be brought to the office for the first treatment by ambulance. Other cases were ambulatory, but with severe complaints; others with milder complaints. Most cases complained of low back pain, but there were also cases of cervical, dorsal or upper lumbar area strains in this series. All cases brought to the office were treated by us; no cases were transferred for consultation or treatment by other doctors except in a very few instances when patients lived a great distance from our office and requested treatment by local physicians.

Criteria

DURING 1947, 90 cases of industrial backaches were seen. Owing to the temporary nature of the employment and other factors which will be mentioned below, insufficient treatment or follow-up of treatment was present in 10 cases. Of the remainder, three either were dissatisfied with the treatment or preferred other treatment for their complaint so that we regarded their progress under our care as poor. This then leaves a total of 77 cases which were treated adequately and with good results.

The average length of treatment before full release was 10.2 days, the average number of treatments per patient was 5.2 Of the 77 cases, 52 or two-thirds, were kept at work without loss of any time; many of these were necessarily on light duty for short periods, but compensation for absenteeism was, of course, not necessary and lowered production due to absenteeism likewise reduced. Twenty-five cases, or one-third, were off work as a result of disability, the mean period of time here being five days.

Of all the cases treated, it was necessary to hospitalize only one; and his disability was of questionable industrial origin, since he incurred his complaint while making a turn when walking, not carrying any load. This patient was hospitalized for a period of 20 days. He was from the outset predominantly a psychological problem in that he was unable to cooperate in treatment due to a very hypersensitive and unstable nervous system. He has returned to work and made fairly satisfactory progress, but his convalescence has been unduly prolonged because we have been unable to treat him by stretching exercises due to his very poor tolerance to pain. However, he was the only patient of our whole series who required hospitalization or prolonged treatment.

The 10 cases who received insufficient treatment or insufficient follow-up were seen chiefly in the first part of the year when our policy of closely following cases for end results was not in effect. When we later attempted to contact these patients many had moved without forwarding addresses or were impossible to contact for other reasons. Of this group it can be assumed that some did not return because they were dissatisfied with treatment, others because they felt that they needed no further treatment. Later, when our follow-up plan was instituted the number of cases who did not follow through to satisfactory results with a final full release was very sharply reduced. As will be discussed later, the proper psychological handling and instruction of patients being treated by the method of fascial ligamentus loosening is very important; and if this phase of treatment is neglected, many patients will fail to carry through to a satisfactory result.

We regarded the results obtained by this method as highly satisfactory, since the short period of treatment, scant number of treatments necessary and reduced absenteeism were all indicative of an efficient manner of handling these cases.

Variety of Causes

THE rationale of treatment of backaches by this method is based upon the theory that peripheral nerve irritation may be produced by outside compression along the peripheral nerve pathways. This is noted in herniation of intervertebral discs, wrist-drop from crutch palsy, foot-drop from cast pressure, or in cases of irritation from hypertrophied ligamentum flavum.[3] In this same way peripheral nerve signs and symptoms may be produced by the pressure irritation due to contracted fascial ligamentous bands.

The strain of the physical trials and tribulations of life include many factors which cause shortening of fascial ligamentous bands. Often, this is temporary, but in many instances may be chronic. This is well illustrated by the process of limbering up by extensive stretching that football players or track athletes undergo before each contest and before each season of competition. In the animal kingdom we see the unconscious realization of the need to stretch well illustrated in many animals, most obviously in the cat whose first act upon arising is to stretch thoroughly in all directions.

*These cases were treated in the offices of CLIFFORD E. EASLEY, M.D., of Torrance, California, with the assistance of CLIFFORD HIRSCH, M.A., (Physical Education).

There are many factors that cause shortening of fascial ligamentous structures. Some of these are:

A. *An excessive strain which causes tear of the fascial fibers.* This is seen in the individual who is stricken with an acute back pain when lifting, but who subsequently, in a few minutes, is sufficiently recovered to carry on again. He will often seek medical treatment the next day, remarking that he felt all right shortly after the initial pain, but the next morning he was so stiff that he had to roll out of bed and crawl on his hands and knees before he limbered up sufficiently to walk.

In the interval between his initial injury and arising from bed, the fascial ligamentous structures had reacted to the irritative tear by contracting. This particular history is very frequently elicited in industrial back strain cases.

B. *Poor adult chronic posture habits* result in a shortening of the fascial ligamentous structures to maintain this posture. As Krusen[4] has succinctly pointed out in this connection, there is a contracture which helps to maintain poor body posture, and a poor posture which allows further contraction of the fascia. This may be seen in office workers, who, seated a good deal of the time, have a tendency to hold the head and neck in a forward thrust position with compensatory dorsal round back. Over a period of time there is shortening of the cervical and dorsal fascia, and these individuals then note pain of a chronic nature which frequently radiates into the peripheral distribution of the irritated nerves, and which may give rise to basal headaches, pain and sensitivity of the scalp, or pain radiating into shoulders and arms.

Many times these cases are diagnosed as scalenus anticus syndrome, or herniated cervical disc, or neurosis.

C. *Irritative lesions of bones and joints,* such as strophic arthritis and gout, oftentimes cause marked shortening of adjacent fascial ligamentous structures.

D. *Chilling* may cause acute shortening of fascial structures. This is often noted in histories when patient reveals excerbations or "kinks" following exposure to damp or cold weather. Patients may also notice temporary setbacks while under treatment during foggy or rainy weather.

E. *Other factors which are of secondary importance* in consideration of industrial backaches, are:

1. Endocrine imbalances, due to disturbed ovarian function, may cause shortening of fascial structures. This was shown first by Hisaw.[5]
2. Diseases such as meningitis, poliomyelitis, and malaria, result in acute shortening and cause severe pain and limitation of motion due to sensory and motor nerve irrtation.
3. Interference with normal range of motion will result in marked contractures in individuals with paretic gluteal muscles; or in amputation of lower extremities.

Conservative Procedure

THE importance of fascial ligamentous contraction in the production of peripheral nerve pain has been well recognized previously. Ober[6] recognized this factor and in an early publication reported the results of performing 415 fasciotomies for chronic back pain and sciatica. He obtained complete relief in 75% of the cases; he also recommended stretching exercises. Heyman[7] noted relief of complaints of pain about sacro-iliac joint area following manipulation under anesthesia. He believed that this pain was not due to subluxation in the joint, but rather was caused by abnormality in soft tissue structures about the sacro-iliac joint. He advocated stripping about the sacro-iliac joint to release tension of muscle strain at site of the muscle or ligamentous attachments.

In 1917 Baer manipulated 100 patients by forced straight leg raising under anesthesia and produced complete relief of many cases of sciatica by this method. The chief proponents of manipulation today are the English, namely: Platt, Fisher, Mennell, Bankhart, and Bristow. Krusen has noted relief after manipulation, but he remarked that this was only temporary.

The question of the importance of herniated disc in causing backache is one which is of extreme interest at the present time. That this factor has been given at times too much importance is now generally recognized. Meyerding and Pollock[8] state that less than 10% of cases of chronic or acute backache eventually require surgical treatment. Aitken and Bradford[9] recently reported 170 cases of operation for ruptured intervertebral disc and observed that only 13% of patients became symptom free and capable of returning to heavy labor. Fifty-two percent of operated patients who did not have protruded discs and 35% of those who did have protruded discs were still on compensation from two to six years after injury. They concluded that better results could be obtained by adequate conservative treatment before operation is considered. Inman and Saunders,[10] in a recent article, have also indicated that factors other than herniated disc must be considered in most cases of backache. That the above observations are true is evident in our series where surgical treatment was not necessary for any of the 77 cases who received adequate treatment and follow-up. It is becoming increasingly evident that most painful back conditions can be successfully treated by conservative means, and this is painfully evident to insurance companies concerned with industrial compensation of cases who have disc removals.

Many conservative procedures have been recommended. The most commonly used are: (1) deep massage of fascia near bony attachments, causing relaxation of contracted fascial structures for short periods; (2) sudden manipulative fascial stretchings which cause some stretch of the fascia and throw a sharp strain on the fascial ligamentous bony attachments and produce

relaxation of the contractures for varying periods of time; (3) local anesthetic injections into the fascial attachments which bring about relaxation of fascial contractures for the period that the anesthetic is effective; (4) local applications of heat which cause relaxation, but which are only temporary; (5) endocrine treatment as indicated; (6) restriction of motion by braces and girdles and casts; (7) fasciotomy; (8) progressive stretching of the contracted fascial ligamentous structures. The method used in the treatment of the cases of this paper is that of progressive fascial ligamentous loosening, as carefully worked out and refined by Billig. The treatment is based upon active and passive stretching exercises which bring about the progressive release of the fascial ligamentous contractures. During this treatment the patient is encouraged to be physically active. It is not the purpose of this paper to describe the technique of the method. This has been adequately reported.[1,2]

Technique

HOWEVER, a brief exposition of the method of passive stretching aid as advocated by Billig is indicated since this has not previously been described. These passive stretchings are carried out at every visit, usually three times a week. They serve to bring about a more vigorous release of contracture than can be accomplished by the patient by active exercises; but it is very important that the patient maintain the amount of release by active stretches, otherwise the fascia will recontract. Failure to recognize this latter point is the reason that manipulative stretching, without further active stretching on the part of the patient, gives only temporary relief. This is the reason that relief given by osteopaths is many times immediate, but nonetheless temporary. This is also the reason that medical reports of manipulation usually describe only temporary relief.

The passive stretches are first carried out with the patient in the supine position, and with the pelvis firmly fixed by means of pressure just below the anterior superior iliac spines. This is best secured by means of a belt, but can be accomplished by an assistant exerting pressure in this area. Straight leg raising in adduction is then carried out, usually past 90 degrees. The next stretches are then in the prone position. The pelvis is fixed by means of belt or assistant exerting pressure across the sacrococcygeal joint area. Hyperextension in adduction and abduction is then carried out on each side, being carried to the point where definite resistance is felt, and then just a little farther.

The above procedure is quite painful at the instant of stretching; and in severe cases it may be necessary to carry this out under general anesthesia. Vinethene or sodium pentothal are suited for this purpose; the patient needing only a very short period of anesthesia since the stretches can be performed in about 30 seconds.

The authors are aware of skepticism regarding manipulation under anesthesia because of fairly frequent reports of nerve damage by overzealous stretching. We have performed about 50 stretchings under anesthesia, and have had no ill effects. Almost all cases noted moderate to marked improvement following this. We have, however, been careful to never force the stretching under anesthesia to the point of fullest possible stretch, since it is our feeling that that procedure is responsible for the cases of palsy reported following anesthetic manipulations; rather we have carried the motion well past the point where it could be performed without anesthesia but never to the fullest possible extent. In this connection, it is important to mention that the anesthetic should be sufficiently deep so that the patient is fully relaxed.

Psychological Preparation

PASSIVE aid is also of importance in treatment of cervical and dorsal spine strains. It is performed in these instances by aiding the patient during the course of the active stretch to carry on further by applying outside assistance at the moment of greatest excursion of active motion. Following passive stretching the patient is taught active stretches, and here again it is important that these be performed correctly in order to accomplish desired results.

Adjunctive manipulative procedures are also of importance, particularly in cases where the pain is of sudden onset. In these instances manipulations as advocated by Mennell,[11] designed to bring about derotation of the spinal column, will often produce marked relief. But here again it is important that the patient be instructed in active stretchings to correct the contractures. Since these procedures are somewhat painful and often contrary to what the patient believes should be done for his complaint, it is very important that the rationale of the treatment be explained to him so that his confidence and cooperation can be gained. Most patients are quite enthusiastic about this treatment since often they can see immediate improvement, and their cooperation can almost always be secured if the time be taken to explain the need and method of progressive fascial ligamentous loosening. A mental attitude of fear, distrust or discouragement will controvert attempted aid.

Of importance in preventing recurrences, it should be observed that by the time the patient has obtained complete relief of symptoms by means of accumulative stretching, he has well learned the active stretchings that will prevent recontractures if carried out as a part of a permanent program, usually once a day for a period of one or two minutes. This is an important factor since some of these cases would otherwise recontract with subsequent recurrence of pain; and this can be prevented by continuing the active stretches.

Another important fact to bear in mind is that backache cases resulting from strain re-

spond best to the type of treatment outlined above if they can be seen and treated as soon after injury as possible. At a local large oil tool company, the safety director under medical advisors supervision has instituted stretching procedures at the plant as soon as the employee noted the onset of pain. He reports that in most cases pain was relieved immediately, with the lost time being only that necessary to give the treatment; usually only about 15 to 30 minutes, thereby keeping the employee on the job and keeping up his production. The executives of this plant are highly pleased with the results obtained, and in several instances have had this treatment for their own complaints. Since instituting this system two years ago, at that large plant lost time from industrial backache has been zero.[1,2]

Summary

RESULTS of treating 90 consecutive cases of industrial backache by progressive fascial ligamentous loosening are given:

A. Ten were insufficiently treated and with insufficient follow-up to allow reporting.

B. Three were dissatisfied with treatment and stopped.

C. Seventy-seven carried through and were released after an average of 10.2 days with 5.2 treatments.

(1) One-third were absent from work with a mean absenteeism of these men of five days.

(2) Two-thirds remained at work without any lost time.

(3) Only one case was hospitalized.

(4) No surgical treatment was necessary in any case.

2. The mechanism whereby fascial ligamentous contracture can cause back pain is described, with a description of causes of this contracture.

3. A description of the method of passive stretching aid is given.

4. The importance of cooperation of the patient as regards proper performance of exercises, and immediate reporting of onset of back pain are stressed.

5. An example of importance of this method to industry is presented.

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To Specialize in Industrial Medicine

TO SPECIALIZE in industrial medicine requires a knowledge of certain social, economic and administrative problems related to industry that are not in the medical curriculum. . . .The difference between a physician in general practice and an industrial physician consists of the latter's appreciation of the problems of industry and the application of the art and science of medicine and surgery to those problems. . . .He must have a general knowledge of industrial relations, including employment methods, labor turnover, job analysis, apprenticeship, pensions, insurance, rest periods, absenteeism and welfare problems, and a working knowledge of the workman's compensation law of his own state—and of other states also if his industry is national in scope."

—VOLNEY S. CHENEY, M.D., in INDUSTRIAL MEDICINE, January, 1934.

Industrial Hygiene and Medicine: Tomorrow Measured by Today

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THE historical background of occupational disease can be traced to Greece and Rome. This statement poses a question, "Have the physicians since that time missed their opportunity, since the advancement of this field has been—relatively speaking—so slow, or has the need for this advancement just been felt in the last score of years?" A second question "Has this recent advancement been the result of the physician's initiative or is it a result of management's or labor's awareness of its need?" I will not attempt to answer either of these questions but I raise them for your own deliberation.

Whatever your answers, we are all aware that enormous strides and innumerable accomplishments have been made in very recent years. We now have behind us a firm foundation on which we can construct our program for the future. This program for the future of occupational health is one which must be approached objectively by a concerted effort of management and labor, and by medical and sister sciences including chemistry, engineering and physics. No one or few of this group can hope to achieve the objective independently.

Management's part has been well expressed by Mr. Given, President of The American Brake Shoe Company, in an address which keynoted the Twelfth Annual Meeting of the Industrial Hygiene Foundation. "How effectively or how badly a medical department functions should be one of the many useful yardsticks for directors when they are wondering whether the company needs a new head. After all, the most important part directors have to play in management is promptly removing the senior officer when over-all he is not up to his job—yes, and without wasting time about it. By the same token, with today's competition for the most intelligent and efficient workers, stockholders cannot long afford directors who do not realize the importance of top health and safety conditions in their company's plants, nor managements which do not spend whatever money is necessary to give plant people the maximum of health and safety assurance."

Labor's part is one of greatest importance. It consists mainly in obtaining improved working conditions and greater medical security. Labor can effect this by pointing to the various and sundry undesirable conditions which have escaped the attention of others. Its main contribution is that of an adviser. If labor is not permitted to have its share of responsibility it will undoubtedly seek a solution of its own. The recent action of the United Mine Workers for health and welfare funds illustrates this point. Of similar significance was the grant of $575,000 made to Jefferson Medical School last June by the Anthracite Health and Welfare Fund for "a study of miners' occupational diseases."

The chemist is a technical man who by means of his various analytical techniques and instruments is able to give an accurate appraisal of the exposures within the working environment.

The engineer is one who applys or adapts to the working environment those measures which are recommended for correction. My associates in the engineering profession are currently working on the design of some new chemical plants to insure "building into" the maximum in health and safety. Through process control the engineer can eliminate environmental health hazards in the work place.

The physician, in addition to a clinical acumen, should be a coordinator and administrator. He has that opportunity.

PERMIT me now to present a "case history" of a hypothetical company in the field of industrial medicine and hygiene. (Actually the following is a condensate of three actual cases.) These accomplishments begin with the closing of World War I. This company in the early twenties was undergoing many changes (as are taking place in many companies all over the world today). The changes were mainly along the lines of production, shifting of personnel, manufacture of new products, and re-establishing its peacetime market. To that time the company employed self-trained traumatic surgeons to take care of the accident after it happened. Its pre-placement examination was not designed to the proper utilization of the man's best physical attributes. Periodic and transfer examinations were non-existent, investigation of the ill employee was confined to the compensation case, because here it was felt that the compensation case was the only one in which company money actually was lost. Toxicological studies (crude by present-day standards) were made only on cases of litigation. The medical department's industrial relations activity was confined usually to the role of professional witness in cases involving a law suit.

Through some changes in top management personnel, a more positive approach to the employees' physical well-being was deemed advisable. The newly appointed medical director was permitted sufficient freedom of action to exploit this *positive* approach.

The medical division of this company today is vastly different from the one which I have just described. It consists of a medical administrator who coordinates all of the activities pertaining to the health of the worker. This security is extended to all of the plants of the company. He

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reports directly to top management and therefore secures immediate and sympathetic attention to his own problems. He acts as adviser to the personnel department and also the safety department. The industrial hygiene department reports directly to him.

The activities of the medical department are: first aid dispensary coverage of all cases, with follow-up on occupational injuries or disease cases only, and referring of other cases to the family physician. This dispensary type of work is comparable to a modern hospital insofar as it contains the armamentarium of such specialties as surgery, physical medicine, laboratory, x-ray, physiotherapy, etc.

The pre-placement examination now is based on such factors as are determined in job analysis, time and motion study, physical environment, and other pertinent studies. The essential parts of pre-placement examinations *for all employees* covers such factors as are well known to us all, namely: the past medical history, previous occupational history including compensation data, a general physical examination with chest x-ray, serology, and urine analysis. In addition to this preliminary examination, it is then tailored to the job. Examples of this are: an employee who had previously worked with or will be working with lead is given a lead urine analysis and blood study, a person whose visual acuity must be Class A is given a special eye examination. Other examples of tailoring this examination to the worker may include an electrocardiogram for the worker whose history or physical condition suggests that this type of examination should be included.

The examinations are classified into Class A or those with no physical defects; Class B, those whose physical defects may be corrected without loss of work; and Class C or those whose physical defects are of severe or multiple nature and must be corrected before being hired. Few candidates are rejected for employment. Those with defects are referred to their physicians for correction.

Transfer examinations are required of all employees changing jobs in which the job analysis reveals different standards of physical requirements.

Periodic examinations are made of all employees who: (1) work with materials which may be of harm to them; (2) whose type of work may constitute a hazard to neighboring employees; and (3) whose physical condition is required to be examined by law.

All employees who have been ill for three or more days must be interviewed by a physician. This interview may consist of a question or two or it may result in a complete physical examinations including many laboratory tests. All employees who are absent from work for more than seven days are seen at home by a visiting representative of the company.

Any employee who thinks that his work may be of harm to him although he is not classified as a periodic examinee may present himself to the chief examining physician and discuss his case there. The aim for the future regarding examinations is to have all other employees, not fitting into the above category examined on a voluntary yearly basis.

Executive employees are now being examined every second year by outside physicians or clinics of their choice. The reports of the examinations of this group in many instances may be sent to the company physicians and discussed directly with the executive.

Diagnostic aids of the medical department are available to all employees when requested by the family physician. This is a service which can be greatly abused and requires considerable tact in its handling.

The industrial hygiene department of this company is headed by a graduate industrial hygiene engineer, under whom are chemists, engineers, physiologists and laboratorians. This department is equipped to make the latest appraisal of all occupational exposures and when corrective measures are deemed advisable their advice is sought by the construction department in planning these changes. Such routine studies are as follows: air and gas analysis, dust counts, radiation exposures, etc. This department also concerns itself with the various problems of plant sanitation. The newest and probably most important function is that of analysis of *all* new materials with which the worker will come in contact. The purchasing department is required to submit a list of all new contemplated materials. Before these materials can be used they must be approved or labeled by the industrial hygiene department.

The industrial hygiene department has prepared for each division a manual which lists all materials, cataloging them according to toxicity or other harmful factors. This list is kept current. This manual also contains a summary of the type of work done in each job of this division. A master manual of the divisions is kept in the medical departments for quick reference by the physician.

The department of industrial hygiene is continually carrying on problems of toxicologic research independently and in conjunction with institutions dedicated to that purpose.

The physician and industrial hygiene engineer makes routine inspections of the plant at stated intervals and also inspect individual locations after major complaints or after routine periodic physical examination of the workers in that area reveals a changing circumstance.

Plant cafeterias, restaurants, and lunch wagons are inspected from time to time by the medical department. During the war and especially during the period of food shortage this was an extremely important function, as many workers obtained the best meal of the day during their working shift.

Health education of the worker is a function not overlooked. It has a direct bearing on absenteeism. This activity performs an indirect

service of public health to the family of the worker and the community in general. The pamphlets or literature of health education should be seasonal and timely. During the late fall, literature concerning respiratory infections should be distributed; during vacation season, literature pertinent to sunburn, accidents and poisoning would be most apt to be read. At other times, articles on tuberculosis, diabetes, circulatory diseases and the like are interspersed with the seasonal publications.

The proper disposition of tuberculous cases, blood banks, venereal disease, etc., while they are problems of public health, are also problems in which industry is vitally concerned. But so much for the actual operations of up-to-date medical departments.

THE problem concerning us now in relation to the future of industrial medicine and industrial hygiene resolves itself largely into two interrelated fields: (1) attracting the proper caliber of professional men and (2) the education of those men.

How can we attract these men to our field? The obstacles are great, but not as difficult as a few years ago. Then, a physician was looked upon almost as a curiosity if he chose the industrial field. At that time he was not considered a specialist by his fellow practitioners. Almost invariably his industrial contact was for financial supplementation. He acquired his additional professional training in industry by depending upon his own initiative and inventiveness to breach the gap which was lacking. (This is not the case today.) He had a few books for reference. At the present time we are far from our goal, but at least it can be seen on the horizon. At a meeting of the AMA Council of Industrial Health in Chicago, February of last year, an inventory of the existing post-graduate facilities was presented. This inventory is most encouraging and, I believe, shows us the trend of our medical schools in the direction of industrial medical specialization. Recognition of industrial medicine and hygiene by the AMA gives us a footing on which we can compete with the other recognized specialties. We are now in a position to offer the recent graduate a well oriented residency or fellowship in a number of institutions. This number of institutions must and will be enlarged until it includes all of the Class A medical schools. At the present time, the schools offering graduate education in industrial medicine and hygiene are manned largely by physicians and engineers who have received their education the hard way—by experience. These men for the large part have required roughly 20 or more years of experience to attain their present knowledge, but it most certainly won't take 20 years to train the new man. In the meantime this young man will be contributing his share to our field.

There is one possible advantage which we might exploit to attract the proper man, and that is one of finance. After he has received his 12 or 18 months of didactic training—at which time he is probably collecting a stipend—it is possible that he could receive a respectable remuneration while completing his additional in-plant training. This is a reasonable request insofar as he will be an asset to the company by whom he is engaged.

There is one other distinct advantage to be dwelt on in canvassing the field for new men and that is a livable salary to start his first position. This is not generally true in the case of other specialties. Further, he must have organizational backing and authority. He is likely to get that if he merits it. His authority tends to be in proportion to his ability.

In order to advance industrial health in all its components we *must* have the proper men to carry on for the future.

SOME of the challenges which we have recently encountered in the industrial medical field have been:

Beryllium—A lung disease, allegedly caused by certain compounds containing beryllium. This problem was first encountered during the war and to date there have been reported some two hundred undisputed cases, a number of them fatal. There is much to be investigated before this particular disease can be properly categorized. The physician is going to have to work closely with the engineer and chemist before this problem is solved.

Shaver's Disease—This condition, again involving lung pathology, was first discovered during the war and was the result of inhalation of finely divided fume in the manufacturing of synthetic abrasives. The cases reported—to date numbering 90—occurred among those employees working at or above the furnace level. Again many links are missing in the solution of this disease.

Pneumoconiosis has been reported resulting from the manufacture of finely divided nickel. This information is somewhat startling due to the fact that nickel formerly has been regarded as an inert substance. Part of the answer regarding nickel, apparently is to be explained on the physical state of the nickel.

Diatomaceous earth—Here in California is reportedly causing concern among some manufacturers.

Sodium fluoride has been causing trouble recently in the steel industry.

The above statements regarding these various diseases point to the needs and opportunities for research in the ever changing industrial health scene. As new products are added to our everyday life, as refinements in methods of manufacture take place, and as technological progress mounts, we must assume our share of responsibility for the well-being, physical and mental, of the worker.

Think but for a moment of only the organic chemicals from coal, as benzene, toluene, xylene,

or consider the complex molecules from the coal tars with their possible carcinogenic properties.

What unglimpsed vistas may lie ahead in the new realms of radioactive substances, already coming into practical use. What opportunities are offered in applying the principles of physiology to the design of jobs and machines.

Yes, the industrial physician or the industrial hygienist has great opportunities ahead. If he is content only with routine procedure, he becomes a mechanic. If his vision is sufficiently far-reaching and he takes advantages of his opportunities—he will then become indispensable in our industrial world.

I would like to close with an additional quotation by Mr. Given: "The medical head should be a passionate and tireless combatant in his strife for better working conditions. He must feel in his soul a responsibility to every man, every woman in the company, and to their families. He must have real qualities of leadership, and also be a damn good fighter if the hygiene department is to succeed in its objectives. As between management and workers, he must visualize his responsibility to be that of the workers' representative at the management table. He should be the kind a president takes orders from, and gets a thrill out of backing against opposition—and incidentally, it is helpful if the whole organization knows just that."

Balanced Values

INDUSTRIAL medicine supplies a service of incalculable value in about like proportion to employee and employer.

By its pre-employment examination it places the worker on a job to which he is suited, and often points out to him correctible physical defects. By its treatment of his industrial accidents it hastens his return to employment, and many times keeps him from the exploitation of his injury by unscrupulous and unqualified physicians. By its preventive program it reduces his accidents and his illnesses, and thereby minimizes his lost time. By its diagnostic service it expedites his recovery, if such is possible, by early placing his case, clearly stated, before a recognized consultant. And by its periodical physical examination it attempts to anticipate the diseases of middle life and thus prolong his productive years.

For the employer it puts the right man on the right job and keeps unfit applicants from being employed where their presence would be a menace to themselves and others. Its rational treatment of industrial accidents reduces the lost time and brings back to the job a man with a minimum of disability, if any. It detects malingering, and thereby protects the employer. Its preaching and practicing of prevention, in regard to both accidents and illnesses, cut down the rate of both and offer the employer at all times the maximum productive working force. Its periodical physical examination shows the employer which worker needs a rest or a change of work, and in so doing prolongs the years of usefulness of the employee in whom industry has made a considerable investment.

The balanced influence of the work of the medical department in industry can be always felt, though seldom measured. Its sudden removal might make this quantity easier to assay.

[THIS epitome of industrial medicine, with its stimulating clue to a means of appraisal, might well have been written as an expression of today's best thought. It was contained in a personal communication from DR. ROBERT P. KNAPP, Medical Director, Cheney Brothers, South Manchester, Connecticut, under date September 23, 1930—ED.]

Cardiac Rehabilitation in a Sheltered Workshop

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THE ALTRO Work Shops, Inc., operated on a nonsectarian basis by the Committee for the Care of the Jewish Tuberculous for the rehabilitation of dischargees from tuberculosis sanatoria, has carried on a successful program since its inception in 1915. Because of its national and international reputation as a high standard rehabilitation agency, it is not surprising that interested persons and organizations have made frequent requests, for many years, for Altro to accept other types of handicapped persons, e.g., orthopedics, neuropsychiatric patients, epileptics, cardiacs, etc. The most frequent requests were for cardiacs, starting 30 years ago when Dr. Guile, of Bellevue Hospital, New York City, first made this suggestion. Indeed, it has become more and more apparent that, in certain essentials, the problems of the cardiac parallel those of the tuberculous, this being particularly true of the "rheumatic" group. One leading cardiologist has stated, for example, "Rheumatic fever is a peculiar and very stubborn infection, resembling in some aspects tuberculosis. Once infection has taken place it is most difficult to eradicate, and often it persists for months, or recurs year after year. In the most acute stages of their infection, these children are cared for in hospitals, but as the fever subsides, they no longer need this intensive care."[1]

There is general agreement among cardiologists that cardiacs can work following illness, either full or part time. Dr. Richard Gubner reported recently that "the concensus (of 300 outstanding heart specialists throughout the United States and Canada) is that fully 75% of individuals sustaining an attack of coronary occlusion are able to return to their work, and can resume their activities most often after a period of three months."[2]

Because it is felt that most persons with recent cardiac attacks can eventually return to completely or partially useful lives, Altro Work Shops is assured that its cardiac program, begun February 9, 1948, is a valid step in the direction of solving some of the unknowns in cardiac rehabilitation. Altro offers an opportunity for rehabilitation to various types of cardiac sufferers: to the person who has had a rheumatic attack and whose "activity must be resumed slowly;"[3] to the patient with angina pectoris, who, as Dr. Gubner says, "can carry on his activities to the point where symptoms develop;"[2] to the individual with coronary thrombosis who gradually can work back to full-time or limited working capacity,[4] and to many others.

A great deal of our present knowledge about heart disease and its treatment can well be attributed to a notable contribution made 25 years ago. In 1923, the Committee on Cardiac Clinics of the Association for the Prevention of Heart Disease published in the *Boston Medical and Surgical Journal* a nomenclature for cardiac diseases with criteria for certain of the most important diagnoses. Subsequent revisions resulted in four editions and six printings between the years 1926 and 1946.[5] These 18 developmental years saw the inclusion of many refinements in each successive edition, including the development of a gauge for the evaluation of the cardiac's physical limitations and the delineation of his physical activity. This gauge is divided into two sections: one, the Functional Capacity, which includes a diagnosis of both structural organic changes and the functional disturbances; the other, the Therapeutic Classification, which gives "an indication of the amount of activity that the patient may be allowed."[5]

Time and again fervent pleas have been made for the "supplying of facilities and necessary means for an orientation and retraining."[6] It is a sad fact that such facilities are sorely lacking today. It is an even sadder fact that patients and their families, as well as physicians, have yet to be convinced that cardiacs can work and must not be needlessly invalided.[7] For such patients, and for those concerned with the social, psychological, and economic readjustment of the cardiac patient, the classification can serve as guideposts between which other relevant individually pertainable information may be indicated. Indeed, the Criteria Committee pointed out that "at the present time there is no clinical test which will measure accurately the functional capacity of the heart." It subsequently visualized the function of the Therapeutic Classification as "a guide in the management of patients."[5]

Further valuable contributions to the embryonic field of cardiac rehabilitation were made during World War II. The War Manpower Commission and the U. S. Civil Service Commission devised measurements to aid in the occupational placement of cardiacs, as well as other physically handicapped.[8,9] In analyzing the physical demands of various types of jobs and in setting up descriptive outlines of the physical capacities of the applicants—particularly as these qualities related to the job under consideration — both agencies leaned heavily upon the Functional Capacity outline of the New York Heart Association. The classification had accomplished two important things: first, it confirmed the idea of cardiac employability; secondly, it asserted that different types of cardiac conditions are subject to varying degrees of limitations upon their activity. This concept contradicts an opinion, held by some physicians as well as by the gen-

THE CLASSIFICATION OF PATIENTS WITH DISEASES OF THE HEART[5]

FUNCTIONAL CAPACITY

Class I Patients with cardiac disease and no limitation of physical activity. Ordinary physical activity does not cause discomfort.

Class II Patients with cardiac disease and slight limitation of physical activity. They are comfortable at rest but on ordinary physical exertion experience discomfort in the form of undue fatigue, palpitation, dyspnea or anginal pain.

Class III Patients with cardiac disease and marked limitation of physical activity. They are comfortable at rest but the above symptoms are caused by less than ordinary activity.

Class IV Patients with cardiac disease who are unable to carry on any physical activity without discomfort. Symptoms of cardiac insufficiency, or of the anginal syndrome, are present, even at rest.

POSSIBLE HEART DISEASE

Patients with symptoms or signs referable to the heart but in whom a diagnosis of cardiac disease is uncertain.

THERAPEUTIC CLASSIFICATION

Class A Patients with cardiac disease whose physical activity need not be restricted.

Class B Patients with cardiac disease whose ordinary physical activity need not be restricted, but who should be advised against unusually severe or competitive efforts.

Class C Patients with cardiac disease whose ordinary physical activity should be moderately restricted, and whose more strenuous habitual efforts should be discontinued.

Class D Patients with cardiac disease whose ordinary physical activity should be markedly restricted.

Class E Patients with cardiac disease who should be at complete rest, confined to bed or chair.

POTENTIAL HEART DISEASE

Patients in whom no cardiac disease is discovered, but whose course should be followed by periodic examinations because of the presence or history of an etiological factor which might cause heart disease.

eral public, that the cardiac is capable either of complete activity or of no activity whatsoever —a full day's work or completely restricted activity. That the cardiac can engage in activity commensurate with his physical capacity has been well demonstrated in the past. The Metropolitan Life Insurance Company found recently that "a considerable proportion of patients who have suffered an attack of coronary occlusion are still living 10 years after the initial attack, and that many of these people are restored to full or partial working capacity."[10] The U. S. Civil Service Commission stated that "in seeking occupations suitable for persons with compensated heart disease, the commission studied 6,160 types of positions and found 2,913 suitable for this group. A study of the efficiency and productivity of these persons indicates that they compare favorably with normal persons."[9] In a study of cardiacs at work in the Eastman Kodak Company, Crain and Missal reported that, after seven years, "no person accepted for employment with adherence to the criteria (set up by the company Medical Department) showed signs of failure."[11] (In the Crain-Missal study the criteria used were almost identical to that of the Criteria Committee of the New York Heart Association.)

In a more recent study of applicants served by the New York State Employment Service during National Employ the Handicapped Week, October 6-11, 1947, the New York City Division of Placement and Unemployment Insurance received 345 applications from cardiacs of which 10% were actually placed on jobs."[12] It should be noted, incidentally, that during the period under study, the percentage of handicapped placements markedly exceeded the nonhandicapped group.

These studies and reports, together with the personal experience of countless cardiologists engaged in the medical supervision of their working patients, are convincing evidence of the workability, to greater or lesser degree, of various types of cardiac patients. Nevertheless, many problems surrounding cardiac employability remain to be solved. Four general questions may be posed to illustrate the range of the problem:

1. What is the daily work tolerance for various cardiac types?
2. What are the occupational and employment possibilities for cardiacs during and following rehabilitation?
3. What non-medical services are essential to the cardiac during rehabilitation?
4. What effect will certain types of employment have on the course of heart disease?

Altro Work Shops, Inc.

BECAUSE reported experience in the area of observed cardiac employment is relatively meager, the interested investigator must look to the results of related experiences as a starting point for unraveling the unknowns and eradicating the false suspicions about limitations on the cardiac's activity. Much can be learned from established principles in the general field of physical and vocational rehabilitation. It has been pointed out that "rehabilitation is concerned with adequate treatment in kind and time, with the patient's adjustment to his home and the community, with the prevention or minimizing of the danger of relapse, and with his return to a useful life."[13] Specifically, the sheltered work shop concept, particularly as practiced at the Altro Work Shops, Inc. may be proven to be applicable

to the rehabilitation needs of the cardiac. The sheltered work shop has proven its value as a medically supervised program for increasing the physical productivity and emotional growth of the physically disabled person.

The Altro Work Shops, Inc. has demonstrated in its 33 years' experience that the tuberculous dischargee from a sanitorium can be helped medically, socially, psychologically, and economically to take his position beside his well neighbor as a fully functioning member of society. Although Altro manufactures washable service apparel (nurses' and doctors' uniforms, waitresses' uniforms, etc.) most of the applicants to Altro come from occupations outside the garment industry. Moreover, in a 25 year period at Altro, studied by Dr. Louis E. Siltzbach, it was demonstrated that only 17% of all Altro graduates remained in the garment industry.[14] These findings emphasize the fact that Altro considers itself secondarily as a training center, but primarily as a hardening center. Here, the arrested tuberculous patient starts working three hours a day, and his pay scale is at least equivalent to that prevailing in private industry. The patient's progress from a three-hour daily work tolerance to an eight-hour daily work tolerance may take anywhere from six months to three years. The patient's activity is dependent upon the prescription of the physician in charge who determines both the number of hours of work and the kind of job to be assigned. Although Altro's emphasis is upon physical hardening, training in the Altro occupations is under supervision of skilled and well experienced instructors. It is extremely important that those who, upon graduation from Altro, remain in the garment industry—as operators, pressers, cutters, etc.—develop a high degree of skill while at Altro Work Shops which will prevent them from having to take jobs in the low-priced field where the demand is for high-speed production.

In addition to the medical and vocational program, the social work staff of the Committee for the Care of the Jewish Tuberculous provides case work services in the areas of emotional, social, and economic adjustment. Supplementary to this service, the two staff psychiatrists contribute consultation and, occasionally, intensive therapy.

If one places great value, as one must, upon the material incentives to rehabilitation, it is significant that during the 28 years, June, 1915, to June, 1943, patients' earnings exceeded $2,166,000.00 and the loss in operation was less than $230,000.00. In 1946-47, the 100 patients at Altro Work Shops earned $160,000.00. Of equal significance is the fact that Altro has never, in its 33 years, lost a day's work because of lack of orders or lack of materials. This achievement has assured the maintenance of a continuous and uninterrupted process of rehabilitation.

Altro Cardiac Service

RECOGNIZING the necessity of acting to meet the community's demand for facilities for cardiac rehabilitation, C.C.J.T. began actively planning its cardiac service immediately after the end of World War II. In surveying the field, there was discovered to be a paucity of recorded demonstrable experience on this problem. Moreover, there was not found to be any past experience involving a full-scale medically supervised program aimed specifically at the rehabilitation of the cardiac. Up to this point, Altro had anticipated the construction of a work shop which would inaugurate a full-scale program of 100 to 150 patients, similar in structure to the present program for the tuberculous. However, this plan was carefully reconsidered and it was thought wiser, in the interest of the problems presented, to proceed more cautiously and somewhat less ambitiously than had previously been intended. It was felt that a pilot study with a selected number of cardiacs covering a circumscribed period of time would yield much of value to help guide the establishment of a larger cardiac program in the future. Such a study would also serve as an initial test of the value of the sheltered work shop to the cardiac patient. Outstanding cardiologists, and public and private health agencies and associations, enthusiastic over Altro's plans, have confirmed the wisdom of the present pilot study.

No more than 20 male patients, aged 18 to 50, will be carried in the program at any one time. Thus, approximately 75 patients may be served over a two-year period. Their case records will contain medical, vocational and case work data which, when analyzed, should reveal the influence of the sheltered work shop and its related services upon the rehabilitation of the cardiac.

Women are excluded because of administrative difficulties in handling at Altro. It is expected that the obstacles to the admission of women at this time, will eventually be overcome.

Fifty was decided upon as the maximum age for admission because it would yield a group with the greatest possibility for rehabilitation, measured in terms of potential years of productivity. Experience may prove the desirability of eventually raising the age level to 55.

All diagnostic types are considered for admission, except luetics because of poor prognosis. Patients are considered up to Class III C (American Heart Association Classification). All referred patients are examined by the Altro cardiologist, chiefly for purposes of uniformity—a necessity in any program, research or otherwise. The important consideration here is whether the patient's physical capacity upon admission permits a three or four hour daily work tolerance. Travel to and from Altro Work Shops, located in the Bronx, is a key factor.

Because of the research aspects of this program, it is important that the patient be a *bona fide* cardiac case, uncomplicated by another major disability, such as epilepsy, orthopedic condition, neuro-psychiatric problem, etc. This is important if one is to evaluate with some degree of accuracy the influence of the sheltered work shops and its associated services upon the patient's progress.

All patients referred to this program are interviewed first by the social worker for social history and psychiatric screening. Where significant neuro-psychiatric symptomatology is recognized, consultation can be obtained from one of the agency's staff psychiatrists. Following the social worker's screening, the patient is examined by the cardiologist for diagnosis, classification and work prescription.

At Altro, assistance is given the cardiologist in recording of medical data, such as ECG, B.P., fatigue, dizziness, dyspnea, arrhythmia, etc. A full-time nurse is on duty at Altro to assist with these and other duties. While the physical hardening process is combined with vocational training at Altro, the social worker is available when necessary to help with social, emotional and economic needs of the patients and their families.

The patient on a four-hour daily work tolerance divides his working time, half in the morning, half in the afternoon, with lunch and rest periods intervening. A station wagon conveys patients over the six steep blocks between Altro Work Shops and the bus stop.

In the selection of a cardiologist for this program, care was exercised in obtaining a person with an excellent background in clinical, teaching, and administrative experience, as well as with an acute awareness of the social and psychological implications of this problem. In addition, a Medical Advisory Committee whose members have a high reputation in the cardiological and medical field, and towards whom Altro can safely turn for expert guidance, was established. Furthermore, the Research Advisory Committee includes outstanding figures in the field of social research and has already contributed much to the planning of the cardiac program.

Earlier in this discussion several questions about cardiac rehabilitation were posed. It is not anticipated that a two-year study, with a numerically insignificant sample, will yield all the answers desired. The questions raised serve, however, to crystallize the existing inadequacies and can serve as a frame of reference for the eventual evaluation of the study's findings. The starting point of this investigation is the assurance that "in all forms of heart disease suffering can be relieved and in many instances disability can be prevented, so that the patient can remain an active and self-supporting member of society."[15] Whether the results of the study are of negative or positive value, they may at least serve to guide future attempts at investiation and service in this vital field of cardiac rehabilitation.

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Skin Hazards in the Jewelry Industry

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IN PHILADELPHIA, exclusive of small shops distributed throughout the city, the major part of the jewelry industry and its personnel is centered in one street. Sansom Street, from Seventh to Eighth, is *jewelers row*, crowded with stores and workshops where all forms of jewelry are manufactured, repaired or renovated. In the Philadelphia industrial area there are approximately 1000 people employed in the jewelry industry, with an additional 250 metal polishers. Although females are not employed as metal polishers, they constitute 10% of the industry. Negroes constitute 3% of all employed.

An A. F. of L. union is the bargaining agent for these workers. However, there are no provisions in the management-labor contracts dealing with any health codes referable to skin hazards.

The jewelry industry is divided into three sections: (1) Precious jewelry, which includes watches, gold, platinum, diamonds, rubies, sapphires and pearls; (2) semi-precious jewelry which includes the cheaper stones such as garnet, opal, synthetic and glass stones, and costume jewelry; and (3) silver smithing.

Our investigation of skin hazards in this industry entailed the examination of employees in a costume jewelry plant, in several manufacturing work shops handling precious and semi-precious jewelry, and in two electroplating shops. We also observed the employees carrying out their tasks in the various crafts and thus were able to acquaint ourselves with the materials and chemicals used and the manner in which they were handled.

Costume Jewelry Manufacture

A LARGE, modern well-equipped costume jewelry plant with 125 employees was surveyed. The manufacture of costume jewelry begins with the cutting of highly polished sheet rolls of gold filled and sterling silver into various desired shapes. By means of large presses, this metal was stamped into patterns. The patterns were then sent to the assembly room and by the use of a flux, the jewelry begins its initial assembling. All work here was done on asbestos. Additions to the jewelry, such as synthetic and glass stones, were made in the soldering section. Following this process, the jewelry was sent to the polishing department, where it was first pickled in a solution made of three parts of water and one part of sulfuric acid and then doubly rinsed in water. The jewelry was then polished by a machine with tripoli, white diamond and red rouge. Finally the jewelry is electroplated using cyanides, hydrochloric acid, sulfuric acid and nitric acid.

Of dermatological interest, the workers in the assembly room showed fissuring and callosities of the fingers; polishers had callosities on the index finger; and cuts and fissures of the tips of the fingers were observed on all working in the stamping department. There was no instance of hypersensitivity to the sheet metal. No direct contact occurs with the chemicals used in the electroplating department—the jewelry is immersed in the various solutions by means of wires or baskets. Occasionally old pieces of jewelry are remodeled. This necessitates the immersion of the jewelry in strong soap solutions and various solvents like benzol and carbon tetrachloride. Frequent use of these solutions, without proper precautionary measures, resulted in classical pictures of a chronic fissured eczema of the fingers, pathognomonic of alkali-solvent irritancy.

Manufacture of Rings

THERE are between 45 to 50 jewelry manufacturing companies in Philadelphia employing on an average of six employees per shop. Representative of the work performed in these shops was the manufacture of rings. This article of jewelry is made by one of three methods: (1) casting, (2) stamping, and (3) hand wrought method.

Casting is done by one of two methods: (1) centrifugal or (2) cuttle fish bone method. The latter method has been used for centuries. This material is the backbone of a squid found along the Mediterranean coast of Italy. The cuttle is cut into two halves and made smooth with an emery cloth. The model is pressed into the bone forming an impression of the model. The two halves are tied together and a gate leading to the model is cut out. Molten gold is then poured into the mould and allowed to cool. There was

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This is the third of a series of papers in the dermatological field reviewing the hazards encountered in the commodity goods industries of the Philadelphia industrial center. These papers are incorporated as part of the lecture course in "Industrial Dermatitis" given to the postgraduate students in dermatology at the Graduate School of Medicine, University of Pennsylvania, Department of Dermatology, DR. DONALD M. PILLSBURY, Director.

no reported instance of sensitization in employees handling this fish bone.

The centrifugal method which is the most commonly used has come into prominence in the past 10 years. The method is entirely mechanical in nature, thus eliminating many dermatological hazards. The model is made either in a rubber or metal mold. From the mold, wax patterns are made, which are invested with cristobalite. Then the gold, platinum, silver or white metal is cast into the cristrobalite and placed in a vacuum. This is then submitted to temperatures varying from 125°F to 2400°F, thus eliminating the wax. The process of casting is completed in the centrifugal machine and followed by immersion in water. The ring is then filed and "emeryed." The finishing touch is polishing with tripoli and rouge, either red or white.

The hand wrought method entails the hammering out of designs from flat pieces of metals and by welding and soldering to form new pieces of jewelry. This work is done by platinum and gold smiths. No instances of sensitivity to these precious metals were observed in our field trips.

The chemicals handled are: 10% sulfuric acid for pickling which removes the fire coat caused by the soldering process; nitric acid for gold determination; and aqua regia for refining. These workers showed thickening and fissuring of the distal phalanx of the fingers and callosities.

Into the settings of these rings and other forms of jewelry, diamonds and other precious stones are added. The materials and chemicals handled and the risks involved by the diamond cutters and setters have been well described by Schwartz *et al.*[1]

Electroplating

THERE are 10 shops in the Philadelphia area employing one to twenty men engaged in the plating of silver, gold or platinum. Jewelry that is to be electroplated is first washed in an ammonium and tri-sodium phosphate solution. It is then placed in a solution of potassium cyanide with silver nitrate, gold chloride or platinum chloride. On removal, the jewelry is rinsed in water, washed with soap bark solution and dried in saw dust. The process of silver plating observed was as follows: The material that is to be silver plated is initially placed in a cyanide bath until completely stripped. On removal it is subjected to a scratch brush machine made of wire brushes and pumice. After drying, a hand process "sand bobbing" follows in which all marks are removed. Pumice and motor oil are used in this process. A compound of rouge, grease and oil are used for polishing with the polishing lathe. The material is then washed in a concentrated lye solution or a metal cleaner (i.e. KDN). Then it is placed in a silver cyanide solution for at least one hour. It is in this operation in which the silver is plated on the metal. The finishing touches of the process are completed by wire brushing and polishing.

Most of the workers in this branch of the jewelry industry are well acquainted with the primary irritancy of the chemicals used. Experience has taught them that contact with these chemicals must be minimized. Although none of the workers observed wore protective gloves or aprons, direct contact with irritant solutions was avoided as the jewelry was handled in wire baskets, containers or with hooks. Experience has also taught the worker the danger of splashing and the need of immediate washing when such accidents occur.

Agents Causing Dermatitis

INVESTIGATION of the operations in jewelry manufacture clearly indicate the agents responsible for a dermatitis. These agents are either (1) mechanical, (2) physical, or (3) chemical.

The mechanical agents are friction and pressure. They give rise to fissuring, abrasions and callosities. These become stigmata of those handling filings and of those working in the stamping department and in the polishing section.

The physical agents are burns. These are seen infrequently and are due to contact with molten wax or some other hot object.

The chemical agents are the most frequent causes of the dermatitides. The chemicals involved are both organic and inorganic. The latter are acids nitric, sulfuric, hydrochloric; alkalies tri-sodium phosphate, potassium carbonate, sodium and potassium hydroxide, ammonia solutions; and the solutions of various metallic salts of gold, silver, copper; and sodium and potassium cyanide. The organic chemicals are solvents gasoline and carbon tetrachloride, and strong cleansing solutions.

This indicates that the action of these chemicals is due to primary irritancy. Sensitization to the various metals and stones were not observed and instances of such sensitization were not recalled by the workers interviewed. Our attempt to substantiate this finding among insurance and compensation records proved futile. Unfortunately most records are incomplete in their findings.

Observed Variety of Dermatoses

IN OUR tour of the jewelry industry, we studied a group of cases of dermatitis representative of the industry. One case of multiple burns of the hands resulted from splashes of molten wax. One case was an acute eczematous eruption of the fingers and dorsum of the left hand. This patient was found sensitive to gold and cyanide solutions. When this jeweler was removed from his bench work, the skin remained unaffected. Two cases in watch repairmen, showed dryness, scaliness and fissuring of the fingers of the left hand. In watch repairing, the watch is cleaned by holding the time piece in the left hand while carbon tetrachloride is used on a brush held by the right hand. The wearing of a rubber glove on the left hand and the use of lanolin corrected

these conditions. One case in a diamond setter showed an eczematous eruption localized to the left elbow. This was associated with a lymphangitis. This patient carried out his delicate job with his left elbow constantly in contact with a sponge rubber pad used to offset friction. However, patch tests with this sponge rubber gave a + 3 reaction. Removal of the supporting rubber pad resulted in a cure. One case of an acute eczematous dermatitis of the fingers and dorsa of both palms in a worker who had been frequently immersing his hands in a strong soap solution used for cleansing jewelry. One case in an electroplater showed an erythematous eruption of the hands and forearms due to immersion in a lye solution. And three cases of chronic eczema of the fingers and palms in men who constantly dipped their hands in solutions of benzol and carbon tetrachloride in order to clean old pieces of jewelry.

Comment

A DESCRIPTION of the operations encountered in the jewelry industry is reviewed. The most frequent agent responsible for a dermatitis was chemical. The action was that of primary irritancy.

Ten cases, representative of the various types of dermatitis and their causative agents were observed and treated.

Our attempt to compile records for a statistical analysis of the incidence of dermatitis in this industry proved futile. The records of the Workmen's Insurance Fund of the state were made available to us through the cooperation of the Pennsylvania Department of Labor and Industry.* Unfortunately, accurate records both medical and insurance, for a breakdown of the dermatitides were not maintained. Access to the files of private insurance carriers was denied to us. This is regrettable for such information would be of inestimable value to the industry, to the worker, to the doctor, and to the insurance carrier.

Reference

1. SCHWARTZ, LOUIS, TULIPAN, LOUIS, PECK, SAMUEL: Occupational Diseases of the Skin. Lea and Febiger, Philadelphia 1947, p. 825-6.

*Courtesy of WILLIAM H. CHESTNUT, Secretary of the Department of Labor and Industry.

Life May Begin at 65

THE ACCENT on youth is slipping somewhat and industry is looking with a more sympathetic view toward the elderly, more experienced person, a survey shows. It may be that life for many persons may begin not at 40, but at 65 or more, according to DR. ANTHONY J. LANZA, director of the Institute of Industrial Medicine of the New York University-Bellevue Medical Center. He said the survey, based on a representative section of large-scale industry, showed that industry today is placing increasing emphasis on "careers after 65." The survey further showed that in view of the rapid advances of medicine, which have increased the anticipated life span of both men and women, the problem of old-age has become one of the most significant in industry. "There is a marked inclination to liberalize compulsory retirement where the individual is in good physical and mental condition," DR. LANZA said. This is particularly true among "specialists" who are often retained on a consulting basis after actual retirement. "Many others are allowed to continue at work on a year-by-year basis, with age 70 as the prevailing maximum. Many examples of active business careers were found in the 70's and even in the 80's." DR. LANZA said some companies were organizing hobby programs to develop new talent for the "oldsters" once they are retired from a job. Still other companies have named committees or boards to plan retirement "careers" for their employees. A majority have already instituted "easing off" periods beginning in the early 60's, when the individual is gradually absolved of major responsibilities in order to accustom him to less activity. The survey confirms reports that most industries plan to retain their aging men if they are able to work —despite the usual 65-year-old retirement deadline. Many doctors are turning to the problem of treating the aged. "You just can't plow 'em under," one top medical expert said.

—*Chicago Sun-Times*, August 18, 1948

Conclusions from Fifty Years' Experience in the Treatment of Alcoholics

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A STORY is told that a lady walking down the street one morning, to her shock and disgust, saw an intoxicated person lying in the gutter sleeping next to a pig. She stopped and looked and said: "You can tell the man that boozes by the company he chooses." It is then said that the pig got up and slowly walked away.

I have often wondered whatever became of the man in the gutter. Did he later get up and slowly walk away too, or was he taken away by the police and thrown into jail or perhaps on a slab in the morgue?

In the United States, when a person is suffering from syphilis, tuberculosis, heart disease, or cancer, he is given the benefit of teams consisting of scores of highly trained medical experts. He has available, and perhaps is forced to accept if he is recalcitrant, highly developed techniques to make him well. He is immediately released from responsibilities and becomes the object of great personal attention.

On the other hand, should a person, because of no greater faults than the patient with heart disease, fall prey to chronic alcoholism, the picture is quite different. If he is more fortunate, he may be thrown into domiciliary institutions among the insane. If less so, he might find himself in jail because he suffers symptoms like those of lockjaw, rabies, or some other encephalitis, but caused by alcoholism. A great many hospitals will not have him. Some physicians try to get rid of him; others will tell him to "stop drinking." That advice is of no more value to him than it would be to tell a person suffering from appendicitis to stop having pain.

The person suffering from chronic alcoholism is abandoned by his family and ostracized by his friends—a bitter substitute for the sympathetic care he would have received had he fallen prey to heart disease instead. Yet, in effect, his disease is based on a nervous condition created by the people around him, who also make it mandatory for him to take his first drink, since drinking on certain occasions is part and parcel of our habits and culture. When the personality that society has given a man and the strong sedative which society has made him take combine against him, the end result is chronic alcoholism, for which the patient is then virtually punished. Conflicts in the emotional life of a person make fertile fields, on which inebriety thrives. These conflicts are caused by opposition of the primordial drives relating to food, sex, and protection on the one hand, to the "thou shalt not" imposed on us by society. Society, in this case, consists of the persons who have been around us from the beginning of life; their imposed inhibitions are called "conscience." The ramifications and conflicts between these two opposing forces in the personality are the basis of so-called anxiety also known as just "nervousness" or "an unstable nervous system."

Inebriety begins as social drinking. The alcoholic-to-be enjoys the sociability and the easy friendliness that goes with such indulgence. However, from great numbers of people suffering from chronic alcoholism, I have learned that, early in the drinking life of such patients, they experience an almost irresistible urge to take more alcoholic beverages than most of their drinking companions.

The drinker finds that his inhibitions—that is, the conscience which keeps telling him "thou shalt not"—loosen their grip as he imbibes. The conscience, being quite soluble in alcohol, is washed away, allowing him to do those things which he has often wanted to do but never dared. This phenomenon has led many people to the erroneous conclusion that alcohol is a stimulant.

The new freedom, which the nervous person thus has found in alcohol, releasing him from the reality of restraint on his actions and words, is soothing balm and leads him again and again to use more and more alcoholic beverages.

Such drinking inevitably becomes so excessive that the patient finds people around him disapproving. He begins to hide his drinking. Censure from friends and family on the one hand, and the pleasant memories connected with liquor on the other hand next become an additional source of conflict, leading to further anxiety and nervousness. A vicious circle is thus established: drinking causes anxiety, which is the basis for another drinking bout. Soon drinking becomes the patient's foremost physical, emotional, and social problem.

The alcoholic now begins to depend entirely on liquor for symptomatic relief of his anxieties. Likewise he uses alcoholic beverages to quiet his nervousness, tremor, and sweating much as a physician may prescribe phenobarbital freely for similar symptoms.

The alcoholic finds liquor to be a soothing drug as well for the symptoms of a hangover. From there, the therapeutic use of liquor broadens, supported further by the folklore of liquor, which gives it medicinal value in any number of conditions ranging from a common cold to heart disease to snake bite. It has been my observation that the well-advanced alcoholic no longer uses alcoholic beverages simply for escape. Rather liquor is used as a pain-killer and sedative for any ailment to which the person may be subject. The ailment may be an emotional maladjustment, a psychosomatic complaint, or organic. Organic troubles may be, as well, due to alcoholism such as a hangover or symptoms of cirrhosis.

Once the person has discovered for himself the medicinal value in pain-killing and sedation that liquor offers, habituation or the establishment of a craving is an easy, short step. The patient uses alcoholic beverages for the reasons of which we have spoken, which causes the after-effect or hangover symptoms of nervousness for which the patient knows no better remedy than more alcohol, the after-effects of which will be more severe than the previous hangover. The entire nervous system is no longer able to function properly without the presence of this sedative. Withdrawal may cause severe motor disturbances ranging from the hangovers to the more serious forms, alcohol psychosis or delirium tremens, popularly known as "the D. T.'s."

We have found that an alcohol addict generally compounds his addiction and uses to excess any number of other drugs, which have strong effects on the nervous system. I have seen thousands of alcoholics, who are using 50 to 100 cigarettes per day. Many are addicted to coffee, drinking 20 to 30 cups each day. Others become addicted to such drugs as benzedrine, barbiturates, and morphine, and even the Bromo-Seltzer type of patent medicines. Once an alcoholic has become acquainted with any substance having an effect on the nervous system, he will, before long, be using it immoderately.

For my own convenience, I divide liquor users into several classes as follows:

First, there is dipsomania, which is an insane impulse to indulge in alcohol, and the indulgence is due to insanity. I do not believe that short institutional treatment would benefit patients of this class, but probably treatment by a competent psychiatrist might prove of considerable benefit. Second, there is the occasional drinker, where the victim takes only an occasional drink through sociability or environment, has no craving or need for liquor, and has no after-effects following his occasional drinking. Of course, institutional treatment would not be indicated in treating these cases. Some of them will progress into one of the following classes.

Third, is inebriety, where the individual indulges in liquor to excess periodically, without any apparent long term after-effects. Institutional treatment, including psychotherapy, has proved most satisfactory.

Fourth, is true alcoholism, where the individual has used liquor to the extent that he has created a cell demand which is the craving. In other words, it is inebriety plus cell demand or craving.

Fifth, is chronic alcoholism where the individual has indulged in liquor to the extent that, in addition to the aforementioned, he has brought about organic structural changes. Classes four and five can derive much benefit from institutional treatment including psychotherapy.

These concepts, I have found from experience, have great practical significance in so understanding an alcoholic that he may be treated rationally. Let us see how they may be applied towards the successful rehabilitation and treatment of the chronic alcoholic.

When the chronic alcoholic arrives, it is obvious that he is a physically sick person. He is generally also intoxicated. Often there is nausea, vomiting, constipation, or the severe mental agitation or depression, tremor, and general malaise of the hangover. For the gastro-intestinal condition a hot liquid diet is of value. The bowels must be made to move. The barbiturates suggest themselves immediately for the symptoms of nervousness. Here allow me to point out to you again that the alcoholic is prone to become an addict to any and all drugs affecting the nervous system with which he becomes acquainted. Barbiturates, therefore, should be used with great caution. If they are to be given, they must be given without his knowing what they are.

In my experience with probably 25,000 of these patients, I have resorted to narcotics fewer than half a dozen times, and I use hypnotics only for the first three or four nights that the patient is under treatment. If he does not sleep satisfactorily following the withdrawal of liquor and hypnotics, I talk to him in order to get him to understand that hypnotics do not cure insomnia, but only make it worse if continued too long. Then I instruct him to proceed in order to reestablish normal sleeping habits.

Since alcohol is one sedative with which the patient is already well-acquainted, we strongly favor its gentle withdrawal within three to five days by giving successively reduced amounts. Immediate withdrawal of all sedation, we have found, may result in delirium tremens in an alarming number of cases.

After the acute, early stage has been overcome and the craving or dependence on alcohol in the nervous system reduced by the slow withdrawal of alcohol, physical and mental rehabilitation may be begun. To attempt this while the patient is acutely ill will often result in failure of the treatment and loss of the patient's confidence.

When the patient is physically comfortable without the use of alcohol and is able to think clearly, obtaining his cooperation is essential. He is told that he is suffering from a real disease and must be willing to recognize the fact that he is a problem drinker. He must also be anxious to rid himself of this disease. Should this determination be lacking, we are dealing with a secondary type of alcoholism usually based on mental disease. In this case the treatment of alcoholism is useless, as it is not the basic disease, and psychiatric attention for the mental disease is necessary. However, the true essential alcoholic will respond strikingly when he is told that his difficulty is not one of being weak-willed or evil, but a disease. It is easy, then, to obtain his cooperation.

Psychological and emotional rehabilitation is then best carried out by group therapy. At the same time, physical rehabilitation is accomplished by a high-caloric diet, and stomachic tonic,

regular hours, and physical exercise where indicated. Nutritional supplements, such as vitamins in concentrated form, should be given if deficiencies exist. Other stimulants and sedatives such as tobacco and coffee must be controlled. These cause certain nervous symptoms for which the patient in the future may be likely to seek surcease in alcohol.

GROUP psychotherapy is a method of choice. Recently in World War II, it has received much attention in the armed services in the rehabilitation of neuropsychiatric casualties. Group psychotherapy leads to group spirit, which in itself is helpful if properly directed.

Group psychotherapy is carried out by lecture. The subject matter of these lectures is devised first of all to give the patient some insight into his disease and to convince him that he really is suffering from a disease. He should be told how a physician recognizes chronic alcoholism so that the patient may be helped to recognize it in himself. The patient must be taught to differentiate real habituation to liquor from nervousness due to other causes. Mental hygiene must be taught him so that he is better equipped to live with himself. Most important of all, the patient must be impressed with the facts that he will never be a moderate drinker and that, therefore, he must become a total abstainer from alcoholic beverages for the rest of his life.

The patient should be told in plain language that he has a nervous system that is especially susceptible to alcohol and told what he must and must not do in order to protect the benefits derived from the treatment.

It is another matter to overcome the mental factor connected with past indulgence. The patient does not forget the exhilaration obtained from a small drink of liquor nor the sociability connected with indulgence. In time of trouble, or a nervous upset or illness, he formerly turned to liquor to overcome the condition. He will have a mental suggestion to do the same again under similar conditions. He may well interpret such a condition as a craving, which, of course, it is not. The true craving is a cell demand for that something which the nerve cell has been accustomed to getting under similar conditions and circumstances. The patient must be made to realize that all that is necessary is to use common sense in protecting the benefits derived from his treatment, and not to interpret mental suggestions as a craving.

Group psychotherapy should also be carried out toward re-educating the patient in the matters of responsibility, self-discipline, and appointment as well as the adherence to regular hours.

Individual simple psychotherapeutic methods, such as catharsis, which brings insight into emotional problems, as well as individual conferences with physicians on matters of mental hygiene, are of importance.

We recommend to each patient leaving treatment that he become active in the work of the Alcoholics Anonymous where these psychological influences will be carried on indefinitely.

I have found it of utmost importance not to attempt to limit the personal liberties of an alcoholic while under treatment after the withdrawal of the alcoholic beverages. Confinement merely leads to negativism; the patient developing the attitude that he will take a drink as soon as he can get out. It is advantageous to conduct institutional treatment in a small town and to allow the patients freedom of movement within it. The presence of taverns is an advantage, as the patient is trained to remain out of them. We feel that following the withdrawal of liquor and the consequent disappearance of the craving, the patient should be taught to rely on himself to abstain from alcoholic beverages. We have found that a group spirit can be induced which is so strong that a strict taboo exists among the patients against breaking treatment by going into a local tavern for any reason at all. This is a more potent instrument than any iron bars and locked doors.

Finally, to complete the rehabilitation of the patient, he should be given the benefit of thorough medical study in order to seek out the physical or mental disease which we have found to be present in a large number of alcoholics so that these conditions, whether due to alcoholism or not, may be corrected in order to break the vicious circle of which we spoke.

Finally, to industrialists I offer this suggestion. Treat your alcoholic employees as sick people—give them the same consideration you give those who suffer from any other disease. You have an investment in each and every employee. Protect that investment and you will profit, and remember—your alcoholic employees may not all be shop workers or office clerks. Look among your fellow executives. You may find a few there, too.

Since the problem of alcoholic employees is necessarily exploratory, you, as an industrialist, should make it the responsibility of certain people in your organization. A committee can be formed which would include your industrial relations director, your plant physician, and your personnel director, to thoroughly investigate the problem, make the necessary recommendations and report periodically to management.

[DR. MAUPIN'S article was presented at the First Industrial Conference on Alcoholism, Chicago, March 23, 1948, and is included in the Reprint of the Conference Proceedings which may be obtained from the Industrial Conference on Alcoholism, 8 South Dearborn Street, Chicago 3, Illinois.]

The Use of Hydrosulphosol (Sulphydryl) in the Treatment of Chemical and/or Thermal Burns of the Eyes

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A RAPIDLY increasing number of contributions to the literature emphasizes the importance of the sulfur-containing amino acids and their relation to the chemistry of wound healing.[7] In the study here reported certain observations have been made over a period of the past three years during which time a true solution of highly reactive sulfur-bearing complexes containing the sulfhydryl radical has been used to treat upwards of 300 cases involving injury to the eyes caused by chemical and thermal burns.

Supporting the biochemical aspects of this study is the very complete work of Bellows.[1] Suggestive of the clinical possibilities was the first publication of Cruthirds,[2] followed by later studies.[3,4]

Working under the pressure of a busy industrial clinic, detailed evaluation of a specific therapy is difficult, to say the least. But when that therapy is so outstanding as to leave no doubt of its efficacy, as evidenced by repeated application which elicit prompt and favorable response in case after case, then that therapy cannot be ignored.

Industrial medicine offers a distinctive challenge. Particularly is this true in industrial ophthalmology where a delay of minutes may mean the difference between saving or losing the vision of a worker and breadwinner. The final verdict rests on the therapeutic aid at the command of the ophthalmologist, often regardless of the skill with which each case is handled. A lack of specific, effective medication has long been apparent, especially where injury to the eyes involved serious burns caused by strong chemicals.

Among the requisites of an effective medical treatment needed in the handling of chemical eye burns are: (a) speedy removal of the offending agent by copious use of plain water; (b) relief of pain; (c) stimulation of tissue healing.

Neutralizing Agents

THERE can be no question of the time-tested value of employing water freely to wash out all of the chemical that can be removed by such action. But when the infliction of damage has been accompanied by the searing action of heat and/or the additional injury caused by a blow or foreign body entering the eye, the problem of treating an injury of this nature becomes more complicated.

A much-debated procedure has involved attempts to "neutralize" the deleterious effects of chemicals in serious burns, i.e., treating acid burns by use of alkali and *vice versa*. This procedure has become truly obsolete. In the case of those chemicals where the progressive action is one of a corrosive nature, attempts to neutralize the EFFECT (not the substance) of such chemicals on tissue certainly is indicated. The material employed in the treatment of the cases reported here is in itself deemed capable, because of its chemical composition, of promptly neutralizing these deleterious effects produced by accidental exposure of tissue to the damaging action of heat or chemicals.

Obviously, this is an advantage to be taken into consideration.

Relief of Pain

RELIEF of pain can be accomplished rather quickly by the employment of any one of a number of agents available for this purpose. But the problem of recurring pain in the later stages of healing is not one so easily met by mere pain-allaying drugs. The material and technic employed in the handling of the cases reported here seem effectively to have met this problem. The recovery period (in the absence of any secondary complications) is almost, if not entirely, free from recurrence of pain.

Stimulation of Healing

THE question of stimulation of tissue healing is one involving many factors. Observation of the stimulation of such a process beyond normal rates in clean wounds on experimental animals has been reported as virtually non-existent by a number of workers. Included in these studies was the same material that has been used in the series herein reported upon.[5,6] While these studies were not made in connection with the treatment of eyes and the material itself was not applied as it is recommended as the result of wide application to the treatment of burns sustained by man, reference is made to this point for the purpose of emphasizing the other factors involved in wound healing.

Admittedly the normal healing rate of healthy experimental animals is maximal. In man this factor may vary widely, and where there is interference with metabolic phase such as may follow a serious burn the processes involved in establishing prompt healing may be impaired and healing delayed.

In their report on "The Biological Chemistry of Wound Healing," Localio *et al*[7] point out that "The processes of tissue synthesis and destruction are chemical in nature." In this study "the effect of dl-methionine on the healing of wounds in protein-depleted animals" was observed. Methionine was chosen "because it contains the sulfhydryl radical, because it spares nitrogen in

animals, and because it is an essential amino acid."

In a search for a local wound function for the sulfhydryl radical Localio and his co-workers point out that, "Barron and Singer[8] have shown that there exist in a protein molecule, certain bonds and groups in the side chain without whose integrity enzyme activity does not exist. Of these groups the electronegative sulfhydryl (SH) group has been shown to be of much importance. They have shown that many of the reactions of the metabolic cycle are catalyzed by SH containing enzymes. Further that chemical blocking of the SH group of these enzymes with alkylating agents, iodocetamide, mercaptide-forming agents, and organic arsenicals causes inhibition of enzymatic activity. The addition of excess SH groups in the form of glutathione dispels the inhibition and enzyme activity proceeds."

Localio et al also point out that: "the SH enzymes appear to exert their most important function during the *early stages of healing*." This is of great importance in burns of the cornea and conjunctiva, especially the lower cul de sac.

Agents Causing Burns

CHEMICALS, which included several kinds of acids and strong alkalis, were in the majority. Others included hot oil, hot cement and other dusts, hot metal and the flash from exploding furncaes. In fact, in this series of more than 300 cases virtually every hazard related to the production of chemicals or exposure to high temperatures was involved in the process of inflicting serious injury by making direct contact with the eyes themselves.

Treatment

HYDROSULPHOSOL* was used as the medication of choice in all treatments. However, in the last year of this study a concentrate of the aqueous Hydrosulphosol was combined with castor oil and found to provide a stable medication of superior efficacy in treating burns of the cornea and conjunctiva—the great advantage being the smooth bland adherence of the heavy oil to the injured tissue and not seeping out through the lacrimal duct.

In his work Cruthirds reported upon the use of Hydrosulphosol solution (aqueous) and ointment and both of these medications were employed at the start of our study. But emphasis now is placed on the Hydrosulphosol concentrate in castor oil as the preferred medication, used as a thick solution filling the conjunctival sac, because of its viscosity and apparent retention of all of the healing qualities of the original product.

The dilution of 1:20 of the concentrate in castor oil, was selected as being approximately comparable to previously used dilutions of 1:2 in water of the original solution.

This concentrate was supplied in response to our request for a material which could be combined with castor oil. The concentrate was added to the proper amount of castor oil by us. While this concentrate settles out upon standing it can be put back into combination readily with the oil by shaking vigorously in the presence only of such warmth as may come from holding the bottle in the hand a few minutes until the mixture of medication and oil is complete.

Tests now under way indicate that mixing of the concentrate and oil during course of manufacture may result in producing a product in which concentrate and oil will remain permanently mixed.

The technic employed was developed and revised again and again as we faced ever new anatomical challenges but is now routine as follows:

1. Of first importance is the necessity for using extreme care and gentleness in handling lids and tissues. Our experience has given us better results when a case is handled in its entirety by an ophthalmologist. Anesthetize the eye thoroughly but carefully and gently with pontocaine, holocaine or Butyn.

2. Dilate with homatropine in mild cases; 1% atropine in more severe cases.

3. Lay patient *flat*, preferably on a stretcher. Ask patient not to squeeze eyelids but to relax them.

4. Fill entire conjunctival sacs gently with 1:20 Hydrosulphosol concentrate in castor oil from a dropper. Lift upper lid carefully over eyeball; when closing ask patient not to squeeze.

5. Apply pressure bandage: Two eye pads held in position very snugly with Scotch tape, over this a piece of gauze is laid and a black tie-patch tightened so that the eye is immobilized as much as possible. THIS STEP IN THE TECHNIC IS ESSENTIAL IF THE ANTICIPATED RESULTS OF TISSUE HEALING ARE TO BE ACHIEVED. Pressure bandage is not disturbed in ordinary cases for 24 hours when treatment is repeated. In severe cases the patient should be hospitalized and the treatment repeated at intervals of three to four hours—great care being taken of possible burns of the skin and resulting disturbances under adhesive or Scotch tape.

6. No other medication is indicated in the handling of burns whether they are chemical or thermal as long as one is alert for secondary infections. The presence of a bacterial conjunctivitis in a burn case requires extra vigilance. The use of a little sulfa ointment or sulfacetimide 30% in the presence of such an infection usually settles the risk of it within 24 hours.

7. The eye, of course, before treatment is applied, is each time stained with fluorescein and existence of staining areas recorded.

8. The Hydrosulphosol ointment has, in our experience, not been of special use in the handling of skin burns of the upper and lower lids. It seems to be more painful than the other preparation and is prone to melt and run off.

9. On the other hand application of aqueous

*Hydrosulphosol is the T.M.Reg.U.S.Pat.Off. by E. C. Lientz & Co., Inc., Fillmore, California.

Hydrosulphosol by use of a loosely wound cotton applicator "painting" it on the lower and upper lids, and letting each layer dry, applying several layers, is usually sufficient.

10. In the presence of a second degree burn of the lids, an eye patch soaked in the 1:20 Hydrosulphosol castor oil preparation is laid on lids and a tie bandage is used.

Results

PAIN is controlled throughout the entire course of healing and a favorable response to therapy is generally apparent within 24 hours' time. Indication of the ability of Hydrosulphosol to relieve pain is supplied by reports on other types of burn injuries where the mere application of the medication itself results in prompt relief of pain and continued application prevents return of pain during the entire recovery period.

The time required to produce complete healing varies only to the extent of variation in the degree of original injury sustained. Complete healing in cases of chemical burns within a matter of 24 hours is a frequent occurrence, with final healing in all cases deemed to be substantially less than was noted in comparable cases treated previously by other methods.

Complete vision or measurably valuable vision is saved in many eyes in which the recovery of vision or even saving of the eye would previously have been considered as being extremely doubtful.

From the standpoint of the patient, freedom from pain and the ability to note rapid or steady improvement with assurance of final complete healing are factors of inestimable value.

From the standpoint of industry, reduction in lost time and prevention of partial disability by impairment of vision or complete loss of vision, accompanied in many cases by long periods of hospitalization and ultimate removal of the eye, are factors that can be measured in dollars and cents.

Following are brief histories of seven cases regarded as representative in some measure of the entire series:

CASE NO. 1: Male, age 19, severe chemical conjunctivitis and corneal involvement in left eye caused by sulphuric acid directly in the eye. Six treatments, complete recovery in six days with normal vision.

CASE NO. 2: Male, age 22, severe chemical conjunctivitis and corneal involvement in the right eye caused by acid paste directly in the eye. Eight treatments, complete recovery in eight days with normal vision.

CASE NO. 3: Male, age 51, severe burn of the right eye involving bulbar and lower lid conjunctiva, lower half of cornea having appearance of eye being almost "cooked." This burn was caused by a strong lye solution deliberately being thrown into the man's face from a can and included burns about the face and neck as well as the eye. This patient did not reach us until 18 days after suffering injury. Eye extremely painful, deep staining of cornea and conjunctival surfaces. Epithelization began at once and after 19 days eye was left open without medication. Iris not visible at first now seen clearly. Lower fifth of cornea clearing slowly. 20/40 vision after 40 days. In this case supportive treatment was given—riboflavin and vitamin E by mouth. We ourselves were pleasantly surprised inasmuch as it was not expected that the eye itself could be saved.

CASE NO. 4: Male, age 36, chemcial burn of right eye with denuded areas of cornea caused by caustic from drum fluid machine directly in the eye. Two treatments with complete recovery in 24 hours after accident with normal vision resulting.

CASE NO. 5: Male, age 58, corneal burn from pupilary area to limbus in the right eye, with second degree burn of skin below edge of lid. Caused by hot metal directly in and adjacent to eye. This man was wearing goggles which were smashed by impact of hot metal. Hospitalized first 24 hours then treated daily until complete recovery on tenth day following accident with no impairment of vision.

CASE NO. 6: Male, age 23, severe multiple linear burns of cornea with foreign body in right eye caused by hot metal directly in the eye. Hospitalized first 24 hours then treated daily until complete recovery on seventh day with 20/40 vision in injured eye.

CASE NO. 7: Male, age 30, burn (thermal) deep in lower cul de sac. Eight treatments with complete recovery on eighth day following accident with no impairment of vision.

Discussion

MEDICATION: Hydrosulphosol was selected as the treatment of choice because of its indicated value as related to essential scientific facts concerning the biochemistry of the eye. This material, Hydrosulphosol, has been classified by Sullivan[9] as a "true solution of highly reactive sulfur-bearing complexes containing sulhydryl."

Salle[10] reported that the 0.237% of sulfhydryl content in Hydrosulphosol represents an amount of -SH ion per 100 cc. that is approximately 50 times greater than in human blood.

In an analysis and report on the chemical composition of Hydrosulphosol LaMer[11] states that his findings are substantially in agreement with those reported by Salle. LaMer adds that the original product exists as a true solution, that it liberates colloidal sulfur and that the complexes of which Hydrosulphosol is composed result in its being a "super-saturated" solution. He also confirms the fact that the chemical analysis warrants the statement that this product has reducing properties.

Indicated Mode of Action

IN A reference to the possible action of Hydrosulphosol Elvehjem[12] has suggested that it produces a stimulatory effect on the enzyme succinic acid dehydrogenase.

Elvehjem *et al*[13] point out that "Hopkins and his co-workers have shown that succinic dehydrogenase requires for its activity the integrity

of the SH group in its structure." Elvehjem *et al* also state that in glutathione "it is the sulphur group alone which is of importance in connection with tissue oxidation."

Bellows points out that practically all of the minerals found elsewhere in the body are present in the eye but that potassium and sulfur predominate, and that almost half of the total ash (45.8%) of the normal lens consists of sulfate. A considerable portion of the sulfate recovered from the ash is stated as probably arising "from the combination of cystine, glutathione, and other sulfur-containing organic compounds."

Using methionine labeled with isotopes of sulfur and carbon du Vigneaud *et al*[14] found from isotopic analysis of the cystine isolated from the hair of rats that approximately 80% of its sulfur but no significant amount of its carbon had been derived from the methionine. "Thus," du Vigneaud states, "it has been established that the carbon chain of methionine is not utilized in the *in vivo* conversion of methionine to cystine."

An important factor related to the vital role played by sulfhydryl in the eye is the ability of this compound to transfer oxygen, according to Bellows whose research is supplemented by reports of other eminent workers in this field. He also points out that at least part of the protein sulfur may play a role in the intracellular oxygen transport.

In his studies on Hydrosulphosol, Mellon[15] reports that it was found that it stimulates the growth of certain host tissues as indicated by an increase in their oxygen uptake. He adds that with Hydrosulphosol "tissue culture experiments have shown more stimulation of cell function and the differentiation that connotes healing, than they have cell-multiplication."

Bellows shows that "the normal lens is capable of appreciable oxygen uptake" and that "with a torn capsule the consumption (of oxygen) more than triples."

The loss of glutathione in the lens as the result of traumatization has been reported by a number of workers, and one, Adams,[16] reported observing a significant decrease in the lenticular glutathione content due to the effect of heat.

Conclusions

MORE than 300 major chemical and thermal eye burns have been treated with a sulfhydryl-bearing product, Hydrosulphosol, over a period of the past three years with results deemed to be vastly superior to those observed during previous years when other approved methods were used.

2. Results observed include ability to control pain at all times, produce faster healing and effect recovery with less impairment of vision as a permanent disability and fewer occasions where conjunctival flaps were needed or contractures resulted.

3. The use of this material was based on its apparent value as a specific treatment for eye burns because of its chemical composition and an indicated ability to stimulate healing functions related to biochemical aspects of the structure of this particular organ.

4. The simplicity of technic adds to its attractiveness.

5. Its use in eye injuries due to anhydrides and detergents has shown a similar experience.

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Who's Who in Industrial Medicine

"all the world knows me in my book, and my book in me"

GUEST of the evening, he sat at the head of the table. Later he was to explain to a gathering of industrial physicians his recent discovery of the cause, cure and means of prevention of a new occupational disease—certain mysterious blisters in the tissues of magnesium handlers. Over the coffee someone said, "Tell us about the basophilic aggregation test for lead absorption. How did you come upon it?" "Well," he replied, "it followed from a mistake I made in the translation of a German text...." He told the story, the diners listening in silence: a reminder of the meeting hour was a jarring note. On the way to the assembly room somebody offered: "He's given a lot of talks, but that was the best yet." "There's a reason," came the answer. "He was completely at ease."

CAREY PRATT McCORD, M.D.

This incident seems to have marked a turning point. A number of physicians remember it as having settled something they had wondered about—a certain prominent expert on occupational diseases *could* be at ease before an audience. For the expert himself, subsequent events indicate that he, then and there, became fully satisfied that he'd arrived at the breadth and variety of experience where the substance of his talk could be depended upon to carry the form, without any particular intensity of telling to assure the interest.

AT THAT time, which was in late 1942, CAREY McCORD had to his credit a long enough record of achievement to certify that he'd really arrived. Behind him were more than two decades of resultful work as industrial physician, scientist, investigator, administrator, experimenter, and medical detective; a career as medical adviser of big business and consultant for corporations, associations and trade unions; a legion of "firsts" in the discovery of causes and the evolution of preventives; a succession of scientific additions to the armamentarium of diagnosis and treatment; and, last but not least, an array of hundreds of medical articles, studies and reports which alone would seem a full-time job for any man to prepare. All of this had been set forth in detail in "Who's Who in America." and other assemblies of biographical data.* In 1942, he and his record were well and widely known; he was an outstanding figure in the field of industrial medicine; from its inner core to the periphery of its vast penumbra he was a "public" character.

Any worthwhile record has to be built; but to be as impressive as this it must evolve as a collection of totals rather than an assembly of parts. The builder must turn out year-on-year of good work—done in a way that will proclaim its own integrity. Thus busy, he won't have much time to stop and count up as he goes along. Later, however, he will find that the counting is being done for him, in that the accumulation is automatically taking the shape of a foundation on which he can stand as he talks—its firmness under his feet giving him poise and assurance. After a decade or so this will—at least it should—offer a pretty solid footing, reflected in the wholly-at-home manner of whoever has the right to stand upon it. This would be true of most men, and, so far as the solidity of his own footing was concerned, it ought to have been true of CAREY McCORD. But it wasn't—at least until about 1942. If it had been, he, himself, would have been better understood. The reason it wasn't was his attitude toward his own achievements. The fact that it wasn't, offers a key to the study of his very interesting and extraordinary personality....

McCORD'S principal outlet to his field has been the published and/or the spoken word rather than organizations or company identifications. The latter have been important, especially his Directorship of The Industrial Health Conservancy Laboratories, which he founded in 1920, and which has served as the basis of the consultant relation under which most of his work is done. He is a member or Fellow of all the important medical societies. As much as anyone he was responsible for the formation of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION; and he was a prime mover in the establishment of the AMERICAN ACADEMY OF OCCUPATIONAL MEDICINE. The unique and almost honorary Ramazzini Society—of specialists in occupational diseases—is the child of his interest. But those *by* whom he is known for these and his other activities are only a small fraction of the many more

*See "Who's Who in Industrial Medicine (1948-1950)."

to whom he is known: his writings have an international reputation, and his papers have long been features of important medical meetings. He has been on the programs of almost as many meetings as he written articles—both may be numbered in hundreds. And thus, in addition to the myriads who have read him in print, there are the thousands who have heard him give papers or make speeches.

In medicine, the reading audiences will weigh a man's work, but it is the seeing and hearing audiences that, consciously or unconsciously, will also size up the man himself. Whatever verdict they may arrive at, it is a sincere compliment that they come to any verdict at all. . . .

Many people read papers and make speeches. It is expected that they will say something of interest and value to their hearers. Usually the most remembered is that this expectation was or was not fulfilled. If more persists, it is because the speaker had the ability to impress himself as well as his subject upon his hearers' minds. Such an impression is more than mannerisms or idiosyncrasies, though both may be contributory. Something of himself, separate and apart from what he has to say, gets over to his audience—to be expressed later in opinions about him and attitudes toward him. The common reaction is that "So-an-so read a good paper." The less common one is that "So-and-so is a good speaker." The rarer one expresses a deeper feeling—a beginning stir of emotion that will confirm itself in whichever direction it takes. McCORD'S public appearances had their start early in his career, but he hadn't made many before it was apparent that he aroused all three reactions. He read a good paper; he was a good speaker, as speakers go; and he stirred up likes and dislikes numerous and strong. Looking back now, it is not only interesting, it is actually astonishing, to contemplate the number of men who developed a definite opinion about McCORD, or a marked, and very often forceful, attitude toward him, from no other contact than was involved in hearing him read a paper or make a speech. His listeners were sizing him up; the result over a period of years was a "hung jury." This is particularly interesting in view of the fact that so little of what he said had anything to do with whatever was thought about him or felt toward him. His papers, published in medical journals, were uniformly well organized, meticulously prepared, and so clearly written as to be models of expression. They commanded, and received, respect for both content and presentation. They were accepted and read, went into the literature and became important reference material, all on an impersonal basis. But let him read one of them before an audience. . . .

Perhaps there is a clue in the act. Before he would get up to speak at a meeting, most apparent about him was an air of abstraction. But on the dais he seemed a changed man. As he began his delivery, there came—(and these are actual expressions, gathered from years of observation)—"a rigidity of pose," "a professorial aloofness," "a half-expectation of being challenged," "a progressive absence of warmth," "an intensity of emphasis that spoke in italics." The effect was an impression of unease; as one interested acquaintance put it, "a poised, almost deliberate, unease"—if such can be imagined—"with overtones of pragmatic intolerance." All these things might not have been obvious to each individual in any of his numerous audiences, but this is a fair composite through the eyes of all.

These manifestations, separately, were trivial enough. So far as they were due to shyness or whatever form of stage fright medical men experience, they should have cleared up with practice. But with this man they must have been due to something else, for they took the opposite course and became characteristics. Instead of disappearing into the limbo of early efforts—they grew as he grew; and when he arrived, they had arrived with him. By that time they were more than characteristics; they were "symptoms."

Meanwhile the reactions these "symptoms" elicited among his hearers were usually positive, rarely indifferent. Likings developed; dislikes grew marked; and, in such middle ground as there was, the comments rasped with terms of which "opinionated," "pompous," "bullheaded," are, perhaps mildly, illustrative, while faunal descriptions ran the gamut between "lone wolf" and "stormy petrel." All this while his work was being accepted as scientific and authoritative; the worst that was said of it was the judicially-minded observation now and again, that "McCORD is ahead of his time." The reactions were to the man as a personality; they would have been the same if he'd been reading from Shakespeare or a newspaper. . . .

IN GENERAL, this feeling of his fellows toward CAREY McCORD, or against him, or about him, was too strong, it would seem, to have been compounded merely of impressions, especially when the impressions were mostly long-range. Every man has outstanding characteristics; many with traits, or aura, as definite as his made speeches, read papers, presided at meetings, came and went, with hardly more than a ripple of consciousness on the part of those they faced or encountered. What did this man carry about with him, that—close or afar—so definitely attracted or repelled? What was it he had, that his "seeming" characteristics were symptoms of?

There is a hint in the fact that, whatever it might have been, he, himself, was unconscious of it except as he saw its effects. Indeed, he knew so little about it that he never considered it as personal to himself. This indifference was sincere and unassumed, but it contributed very largely to the long-prevalent belief that he was oblivious to opinions, and didn't care what people thought about him.

The answer, however, is in the man, and his response to life. He is a *strong* man. One ele-

ment of his strengths was that he seemed destined—strangely enough for one to whom a predominantly introvert way of life so strongly appealed—to exert an influence on all he met. This faculty was vivid; to come within his area of contacts was, for numerous people, less an encounter than an impact. Something about him roused reactions; once in a while these were so sudden and strong that the amenities of formal introduction were left gasping. In small groups it was as usual for him to attract attention, curiosity and interest as for less gifted persons not to. In larger gatherings—but these have been noted. What more natural, then, in whatever contacts, than for the remembered picture of him under any circumstances of meeting, to be drawn in imputations of the apparent to the real? That, of course, is the ordinary procedure. The things he "seemed" were strongly seemed; there was nothing half-way about them; such as they were, they were forceful. And thus the "seemings"—all there was to judge by—formed the design, while their intensities as impressions gave it the deep colors. The now time-tattered statement that "a good many people don't like McCORD" is a tribute to this strength.

BUT he was strong, too, in another way. He was consumed with a terrific, inflexible ambition. To understand this ambition, its genesis, and how it became the inexorable driving force of his life, it is necessary to go back to his childhood days in the "deep south," and to a certain psychic trauma so devastating that no less than burial under the permanent monument of a remarkable and revealing book could put an end to its influence.* This book's absorbing story of how and when and why a fierce ambition began and burned in the heart of a lonely boy must not be spoiled by abridgment here. Lest the pleasure of reading it be marred, it will be said only that, as he grew to manhood, his ambition also attained full stature, and in 1919 he took the first step toward its fulfillment when he "became an industrial physician." His reasons for this choice of a field are described in his book. They contributed to his being, in 1919, a young man with a vision. In his own words, he, with some others, "was given the boon of prescience—the foresight of the country's tremendous industrial expansion, the concurrent rise in occupational diseases." In those days "to enter the field of industrial health preservation carried with it the penalty of being shorn of a few of the outer garments of medical respectability." But he entered it—with results as above; happy and fortunate results for industrial medicine, because he would have driven himself to useful eminence in any line he might have chosen. With the gifts of a fine brain, quick intelligence, alert perceptions, unusual memory, and a powerful physique, and with ambition cracking the whip over all, he was fated to go far. Maybe too—having chosen industrial medicine—there was the added spur of the then disrepute in which the field was held. To a man of his qualities, that would be a challenge.

*"A Blind Hog's Acorns."

THE MIXTURE of a strong man and a strong ambition, however, will usually produce impatience; and this will be particularly evident when the man has pronounced extrovert capabilities while his ambition forces him into an introvert channel of work. In such a case, the conflicts between the two strengths may result in various degrees of a certain kind of unhappiness. With McCORD this effect was enhanced by the fact that his ambition could be satisfied only through his own personal efforts. He didn't want wealth or preferment as such; all he did want was to accomplish, to do, to achieve by *himself*. But however much he finished, there was always more to be done. Like a locomotive headlight, he was forever looking forward from where he'd arrived to where he was going. A philosopher once said that the measure of a man's unhappiness is the distance between what he demands of himself and what he can reasonably hope to accomplish. McCORD demanded so much of himself that this distance was always great, and, as his field expanded and new processes brought new hazards, it grew greater. Always there loomed the widening gap between the introvert fruit of the cloister and the extrovert yield of the vine. His "unhappiness," therefore, corresponding in proportionate dimensions, gave him no peace. The unrest, unease, unsatisfaction from which he could never escape were the visible forms, the symptoms, of this inner trouble. It was as simple as that. He wasn't "an opportunist with a chip on his shoulder." He was a strong man with a strong consecration to a strong purpose. One thinks of Jeremiah, so absorbed in his "great work" of building the wall that he had no time for even the king's messengers ....

McCORD has done well with all of his strengths. If, on his way to the "turning point" of 1942, anything he "seemed" on any occasion was the cause of pique or antagonism, possibly it was only the whiplash of his ambition circling far enough outside of himself so that a small sting was felt as it passed. At any rate, whatever, excepting only the best, has been the sequel of any contact he ever made individually or *en masse*, nothing but the best was intended. Anything less would not have been CAREY McCORD as he really is.

THE "really is" of this man always was. When its light shown dimly at times, the visibility was suffering from his habit of hiding it under the bushel of his work. The comment about him, whether as praise or criticism, that he was "immolated" in whatever research or investigation he had in hand was fat with truth; no sacrifice the work required—of recreation, social contacts, hours, convenience, personal interests—

was less than privilege and duty. His intensiveness, however, often swung his estimate of requirements to the severe side. There were occasions, indeed, when he rather took it for granted that those about him had a similar feeling of consecration to the job. Their reactions—though only such as would be expected—sometimes surprised him a little, and taught him, possibly, a little more. That he was a quick and willing learner is indicated by his response to one illustrative lesson; it led to his becoming a collector of turtles—not live ones—which he likes to show. The several dozen he now has, in brass, glass and plastics, he keeps as a symbol, and a reminder. He had engaged a new secretary, and the rapid and accurate way she began on a long report made him extremely happy. The job was important, the matter was involved, the report was timed for a due date—and his eagerness for each successively completed page as it rolled from her typewriter was undisguised. One morning, however, she came in to say she was quitting. His protests were earnest and his praise sincere, but her incisive reply left no doubt that she considered him a ruthless machine interested only in how much work could be produced, a cold-blooded slave driver, with not the slightest appreciation of his fellow-workers as human beings with lives and problems and interests of their own. "Like a turtle," she said, "you hide away in your shell and see nothing about you!" With that she took from her purse a small glass turtle, laid it on his desk, and walked out. Later, as he sat regarding this souvenir of her displeasure, he noted it had been cast with its head extended, as if it were looking around.

BUT it wouldn't be fair to leave him, at this point, looking at the turtle, for the light of his "really is" shone brightly most of the time. And memorable in the minds of those who have been closely associated with him as distinguishing that "most of the time" are his "inspirational qualities, his tact, his ability to make his younger associates feel important, his very special faculty of being able to play the other fellow's game, and to appear deeply interested in it, and his enthusiastic habit of pushing younger men ahead provided they worked hard and showed ability." The "provided" was always important, for he has a tremendous respect for brains, and a complete lack of tolerance for stupidity. Knowledge was in him, however, for one who could learn; ambition and drive for "him that could get it." More than two dozen of the young men who have been associated with him throughout the years—industrial physicians, industrial hygienists, chemists—have gone on to their own successes, much the better for having worked a while in the atmosphere and under the influence of his tireless energy and careful tutoring. It is interesting here to record the fact that this information had to be obtained from their admissions; it couldn't be dragged out of him.

THE YEAR 1942 is important as a turning point in McCORD'S life because it was then that his thoughts and plans for a book that would fittingly mark the 25th anniversary of his founding of The Industrial Health Conservancy Laboratories began to crystallize, and it was then that he seemed to have arrived at the point of sureness of himself that he had enough to say. This was to be a book not written with haste and drive, but calmly, and with repression. He had proved that he *could* be calm, that he *could* subdue his intensiveness. Yet, though the anniversary was still three years off, his writing would have to be superimposed on his work, and there was no time to lose. This was another challenge—to a versatility he wondered if he possessed. But he met the deadline, and "A Blind Hog's Acorns" was published in 1945. The subject and scope of the book are indicated in the sub-title, "Vignettes of the Maladies of Workers." The form is narrative, interwoven with incidents in his life and comments and observations from his rich and vivid experience. It's really autobiographical, the first such attempt by an industrial physician. The style has the ease and charm of career authorship; it is so completely different from the hard and tight exactness of his scientific writings—his forthcoming book on "Odors," for example—that if it were not for certain unmistakable characteristics of expression in both, it might be difficult to believe they were written by the same hand.

"A Blind Hog's Acorns" met instant favor, and speedily went into a second printing. Reviewers ranked it with "An American Doctor's Odyssey," "Plague on Us," "Yellow Jack"; one thought it "the most interesting book I have read in a long time"; another, "the best public relations ambassador industrial medicine could have"; still another: "ought to sell a million." Its title intrigued, and puzzled. A metropolitan newspaper columnist called it "the worst title ever hung on an interesting book." The reader, however, found it "quickly explained in the first pages," and from there on the significance of the blind hog and the acorns was "uniquely apropos." Altogether, this was a remarkable and successful work. His fellows in the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS recognized it as contributing largely to his qualifications for their highest honor; they gave him the WILLIAM S. KNUDSEN AWARD, of 1947, for outstanding service to industrial medicine.

The interest here, however, is not so much in the book as in what the writing of it has meant to its author.

WHAT prompted Job's desire that his "adversary had written a book" has not yet been discovered by the scholars. Job was a good man at heart, and it may well be that he had only a good motive. Through the book, he might become *really* acquainted with his adversary, and the things he could find to like and admire would show him how to be friend.

To the extent of an "adversary" implication, there were numerous Jobs among the people, who had opinions about CAREY McCORD. This is complimentary to them, for a foe of such mettle as his will have no time for one not worthy of his steel. They were good Jobs, however; they may or may not have desired that he write a book, but the sequel of his having written it proves they were good at heart—even though it must be said of the book itself that seldom has there been one more appealing in its revelation of qualities worth liking. The net result seems now that *'my adversary WROTE a book, and lo, he is no longer my adversary!'* This feeling is general. In many instances, there are overtones of relief. He *is* likeable, after all, and, as his friends have long known, eminently worth liking. And he's human; he *does* want to be liked. A specific incident holds its tome of meanings: On the occasion of the KNUDSEN AWARD bestowal, he found himself seated in the place of honor next to OTTO GEIER, of Cincinnati, who was also to receive an Award for distinguished service. The two had been "feudin' " for several decades, and it was the first time in many years they'd sat at the same table. McCORD broke the long silence to ask why. GEIER replied that he couldn't remember. Right there the feud came to an end. McCORD remarked later that its ending meant almost as much to him as the Award he had been given.

Objectively, therefore, "A Blind Hog's Acorns" has had a fine significance for its author. Those who liked him found their liking, where it stood on reasons, strongly confirmed, and, where it existed without reasons, a source of added pride. Those who didn't like him, wondered why they had ever thought he was other than the human, sensitive, finely-tuned and friendly individual his book reveals him to be. And beyond and outside of both there is a wide new public who, having taken him into their homes by way of his book, have made a warm place for him in their hearts through the responses to which they were stirred when they read it.

But subjectively his book has meant much more to CAREY McCORD. It has put him right with himself. It is proof that he's done what he set out to do, and a justification of his way of doing it. It explains his record, not in terms of the record, but in terms of why he simply *had to make it* no less remarkable and impressive than the record it is. It looks back, from the demonstrated opposites of both, to admit that "low aim, not failure," would have been the crime. Last, but by no means least, it has identified him with his fellows; there's a new, unspoken, but very definite feeling of recognition both ways. He's one of them now—no longer the "lone wolf."

And thus there is much evidence of a change in this man during the few years since his book was first published. The tension, the driving impatience seem a little subdued; the unease is less noticeable; the aloofness has disappeared; he laughs more; and, in the main, the "seemings" that annoyed have given place to realities that attract. Whether this is a result of the way his book was received, or the book itself, or the writing of it, or his having arrived at the point of time and accomplishment where he was ready to write it, is not important. Any one of these would have been enough; the significance is that the result has come about, and that CAREY McCORD will not be allowed again to seem other than he is. He's emerged from his shell, and his book will keep him as permanently out as the material of the turtle his secretary left him will keep its head in a looking-around position. If anyone should want to interpolate here the thought that "McCORD is a smart man! Maybe he knew this all the time," a bit of drama may be added to the versatility, but it will only enhance the effect. Such a thought *might* follow from the fact that he kept the turtle.

This change in him, however, isn't exactly a blossoming out; it is more a sort of unveiling, the pulling aside of a curtain. If it is not wholly apparent to those who are close to him, the reason may be that they right along have been on *his* side of the curtain. In general, and for the host of others who know him, whatever vestiges of former "seemings" haunt his presence, they distinguish where once they only disturbed. They are understood. Paraphrasing the line from Montaigne, "All the world knows him in his book, and his book in him." The verdict of his now extensive public is on its way to satisfactory unanimity.

Interestingly, the fact that he has a public recently brought him his initial adventure on the national scene. In January, 1948, at Birmingham, Alabama, he gave the first of the Judson Davie Dowling public health lectures originally scheduled to be delivered by the late Fiorello La Guardia. In addition to the usual honors shown a guest of the municipality on such occasions, the City of Birmingham gave him its gold key of distinction, the 23rd bestowed in its 75 years of existence.

BUT HE'S STILL CAREY McCORD — and more so than ever: scientist, physician, individualist, in truer colors as they're truer seen. And more so than ever in his habited firmness of asking no quarter, needing no apology, assuming no defensive. Therefore, lest it be inferred that "A Blind Hog's Acorns" was in any way a valedictory, it will be noted at this point that it was only a milestone. His next book, "Odors—Physiology and Control,"* took him right back to the untrodden paths of the scientific. That done, there'll be some other challenge. He'll never cease to work, nor to like to work—not, at least, unless it shall be granted him to find the cause, cure and means of prevention of the last and final occupational disease that is ever going to follow from mankind's ultimate use of every substance known and yet to be discovered. His un-

*McGraw-Hill Book Company, in press.

satisfaction—unabated still, though now less tensely shown—will push him into another complete career, and, it is hoped, another, and this time complete, autobiography.

Meanwhile he'll go fishing when he can, and sometimes he'll take a day or two and "just loaf" —physically, that is, for his mind is fueled nonstop. He reads a lot; has a tremendous vocabulary; tells a story in a manner to be envied; and can be very good company when he wants to. His sense of humor is keen and appreciative—even where the laugh is on him. Temperate in habits, he takes care of his physical being; he's likely to depart early, and, if so moved, abruptly, from the few evening affairs he finds time for. Who else, for example, could take leave of hostess and guests with only the words "I go"?

ALL IN ALL he is CAREY MCCORD—himself—inimitable. His is a pattern he alone could fit. The elements "so mixed," and the influences that bore upon them, made it what it is; but the credit for having filled it out to the utmost niche and corner of its distinctive possibilities, belongs to him. Upon the evidence, it is safe to conclude that if he has any religion its gospel must be the Parable of the Talents—for his conscientious and fruitful use of those he was given is already as sincere a recognition of the Great Giver as the Giver, Himself, could desire.

An Industrial Medical Department World-Wide

SOME INDICATION of the extent of activities of the medical departments of the Standard Oil Company (New Jersey) and affiliated companies is evident in the brief figures given herewith. Medical departments of companies affiliated with the Standard Oil Company (New Jersey) are presently operating in 40 states, in many of the provinces of Canada, and in 42 other nations or dependencies in all parts of the world. The employees of the Standard Oil Company and affiliates total 104,250 in number. There are 91,500 members of employees' families who rely upon the various medical departments for medical care. There are also 21,480 persons who are not employees nor members of employees' families but are dependent upon these medical departments as there are no other medical facilities available. In order to render adequate medical care to these 217,230 individuals, a large staff of physicians is required. The total medical staff consists of 209 full-time doctors and 30 part-time doctors, all of whom are established in medical units. These professional men are assisted by suitable complements of graduate and practical nurses as well as laboratory and x-ray technicians. In foreign locations where the population groups are not large enough to warrant the services of even part-time physicians there are approximately 300 doctors whose services are utilized on a fee basis. In the United States, more than 2,500 medical examiners have been appointed to perform pre-placement and other types of examinations, and to render emergency care to employees who are in areas where no company medical units exist.

—*The Medical Bulletin*, Standard Oil Company (New Jersey) and Affiliated Companies, Thirtieth Anniversary Issue, June, 1948.

ASSOCIATION NEWS

DR. B. N. LINGARAJU, Medical Officer of Health, Mysore State Health Department, Bangalore, India, spent a few hours visiting the Association offices. He is completing the course in public health at Harvard and used a few days in the Chicago region seeing industrial medical departments and public health activities of special interest. He is very enthusiastic about the opportunities of instituting many of these industrial health practices in India. Much interesting and valuable information is exchanged at these interviews with our guests visiting the Association offices.

DR. WILLIAM W. CORBETT, who received his M.D. degree at Georgetown University School of Medicine in 1927, has been active in the field of industrial medicine and surgery since 1941. He was associated with the Medical Staff of E. I. du Pont de Nemours & Co., more recently as plant physician and surgeon with the Ethyl Corporation at Baton Rouge, Louisiana. Of great interest to the members of this Association and to all interested in the field of occupational health, is the news that DR. CORBETT on April 1, 1948, became a staff member of the Council on Medical Education and Hospitals of the American Medical Association. It is gratifying to all that this Council has the vision and foresight to select for its staff physician, a man who has had six or seven years of practical work as an industrial physician and who, therefore, is well qualified to aid in the study and approval of medical schools, hospitals and medical departments of industrial plants for residency and Fellowship training in occupational medicine.

NEWS reaches us that DR. R. D. MAC KINNON, 217 South Fifth St., Philadelphia, passed away June 11, 1948. He received his M.D. degree at Temple University Medical School in 1913, and interned at Philadelphia General Hospital as well as San Francisco Polyclinic and San Francisco General Hospital, 1915-16. He has specialized in industrial medicine and surgery at the above address for many years.

DR. FRED WALSH TAVENNER, of Gas City, Indiana, passed away July 15, 1948. He received his degree in medicine at University of Indiana, 1925, interned at the M. E. Hospital in Indianapolis, 1925-26. He was 53 years of age. Among his industrial medical appointments, he was part-time Plant Physician and Surgeon at the Gas City Division of Owens-Illinois Glass Company.

HEALTH AROUND THE WORLD

PRESENTED as a Project of the New York University-Bellevue Medical Center in cooperation with Station WMCA.

DR. SCHREINER (DR. GEORGE E. SCHREINER, Assistant, Department of Physiology, New York University College of Medicine): Good evening. Tonight, our Doctors Round Table is acting host to one of the best-known physicians associated with industry in this country. He is DR. ROBERT COLLIER PAGE, General Medical Director of the Standard Oil Company (New Jersey), whose health program is responsible for the care of 208,000 persons throughout the entire world. We are confident that you will be interested in what he has to say, for he recently completed a round-the-world tour of 22 countries of the globe, during which time he traveled some 35,000 miles studying health conditions. He is here with me now, and I am going to ask him some questions about his trip. DR. PAGE, during your trip you must have formed some definite opinions about the health conditions in other countries in comparison to our own. Tell me in your opinion, what is the most significant conclusion to be drawn from your tour?

DR. PAGE: I talked to many doctors overseas, and many health workers, but if I were to try to boil down all of what I saw and heard, I would say that the greatest need in all foreign countries I visited was for the adequate teaching and the dissemination of known and accepted medical knowledge—in other words, teaching the modern concepts of preventive medicine. Malnutrition, poor housing and inadequate sanitation are prevalent factors everywhere. This has resulted in health deficiencies of all types, with tuberculosis exacting a particularly heavy toll of lives. Smallpox, typhoid fever, cholera and malaria are a few of the other diseases which are overcrowding hospitals and taxing the efforts of doctors and health workers.

DR. SCHREINER: Would you say that this condition has been caused entirely by the war?

DR. PAGE: Not altogether. It is true that the recent war has set medicine back many years, not only in the countries directly affected, but in other foreign lands as well. But the fault is partially our own. The advances we have made in this country in the prevention of disease are not being made available to other countries. In many cases, the wrong information is being sent to them. As for example, the spectacular statements regarding the efficacy of new drugs and the miraculous claims made for streptomycin as a cure for tuberculosis. Such facts, appearing in our press, have caused great damage, and *deaths have occurred* due to misguided uses of such drugs.

DR. SCHREINER: Of course, the medical authorities you met were anxious to get this latest information, were they not?

DR. PAGE: Decidedly so. Every doctor with whom I came in contact was hungry for creditable medical literature of all types. We could help prevent much human suffering abroad if the medical profession in this country could find a way to send them all known and accepted facts regarding the prevention of malaria, tuberculosis, syphilis, smallpox, typhoid fever and cholera.

DR. SCHREINER: That's exactly the conclusion I've drawn after talking to many European visitors who have come to New York University Medical School recently, and in talking to many Europeans who attended the recent convention of the Society for

Clinical Investigation in Atlantic City. These men often were as starved intellectually as they were physically during the strain which the war placed upon them, and I think they're very hungry for medical information and anxious to get back to the research that they were conducting before times changed. It seems to me that our medical profession is in a position to assume the leadership in world medicine at this time, if only by reason of its willingness to *help* the medical professions in other countries. Now, I wonder if you would mind telling our radio audience something about the countries you visited.

DR. PAGE: I visited England, Belgium, Germany, France and Italy, enroute to Saudi Arabia. From Iraq, I went to Pakistan, India and Siam to Java and Sumatra. Then I flew to Shanghai, following stopovers in Singapore and Hong-Kong. I also spent some time with COLONEL C. F. SOMS, in charge of the public health and welfare section of the Military Government for Japan and Korea. I came back to this country by way of Wake Island and Honolulu.

DR. SCHREINER: How about the medical educational facilities in those countries?

DR. PAGE: In Saudi Arabia, for example, there are none whatever. Generally speaking, I found that the techniques of preventive and constructive medicine on a community basis, which is so common in the modern American city, were little known, and applied only in a very few places. One of the most striking examples of the influence of American education was in Beirut, Lebanon, where I visited the University. The campus and buildings were one of the most magnificent sights I saw on my entire trip. The achievements of the directors and those in charge of this university are outstanding, and they are to be complimented on the organizational and educational job they have done. It is typically American in standards. I certainly wish there were more institutions abroad like it. Perhaps you know that it is incorporated in the State of New York.

DR. SCHREINER: No, I didn't know that.

DR. PAGE: Yes, and they're doing marvelous work. In Hong Kong I had the opportunity to talk to DR. ISAAC NEWTON; you know, he is in charge of the medical division of the British Empire's Colonial Service in China. He told me that prior to the war, beriberi, or the lack of vitamin B, was a frequent cause of death among rural Chinese. Now, he said, in spite of a lack of sufficient rice for their needs, very little beriberi is recorded.

DR. SCHREINER: How do you explain that?

DR. PAGE: Well DR. SCHREINER, other forms of unrefined grain foods containing the much-needed vitamin B are now being used very successfully. Which fact, in my opinion, illustrates very clearly that people *will* change their habits—either as a result of necessity, or preferably of course, by efficient education.

DR. SCHREINER: Ah yes, Bernard Shaw demonstrated that pretty well in Pygmalion, didn't he?

DR. PAGE: Yes.

DR. SCHREINER: Are the hospitals abroad fairly well equipped, that is, in comparison to our own?

DR. PAGE: I don't think a comparison of that sort would be quite fair because of the post-war conditions. You know, we in this country have the very best equipment and supplies that money can buy. But I will say this, however—everywhere I found that even though doctors were necessarily limited in their use of what we would term modern equipment, they were, nevertheless, doing everything they could do to combat disease. Malnutrition, of course, is the great trouble.

DR. SCHREINER: Do you think, then, that the food we are sending over there will, in reality, help their medical authorities to improve conditions?

DR. PAGE: I certainly do. Nutrition has been, and always will be, a dominant factor in maintaining the health of any people. That is why the life span in this country is increasing every year. Unless the body has the strength to throw off disease, then drugs and medicine are only partially effective. We are fortunate in this respect over here. We eat the right kinds of food, and there is plenty of it. A major part of the medical programs maintained by the Standard Oil Company (New Jersey) in other countries consists of definite supervision of proper nutrition. It helps our doctors, as well as cutting down the number of patients who require hospitalization.

DR. SCHREINER: Can you give us a short picture of the health conditions in each of the principal countries you visited? I am sure our listeners would like to hear about that.

DR. PAGE: This was my third trip to England since the war. Queues are still in evidence. The housewife has a most difficult job in obtaining enough food essentials to keep within the family budget. At present, the whole problem of medical care in England is disturbing. England's schools graduate a goodly number of doctors each year, but lack of hospital facilities prevents many of them from obtaining internships. Consequently, many doctors take on a panel practice where symptomatic rather than diagnostic medicine is practiced.

DR. SCHREINER: Did you find the same situation on the continent, in France, for instance?

DR. PAGE: In France I noticed much improvement as compared to my visit there two years ago. The market places were filled with fresh fruits and vegetables, although the cost was almost prohibitive. In Normandy, there was no apparent food shortage whatsoever. Chronic diseases, nevertheless, particularly tuberculosis, were most prevalent.

DR. SCHREINER: What are your observations on Germany and Italy?

DR. PAGE: Malnutrition was apparent everywhere. In Germany food shortages unquestionably account for a high percentage of sickness. The Germans are a clean lot, and in spite of much destruction, their homes are clean and water supply and sanitation are well taken care of. My recommendations, insofar as employees of our own affiliates were concerned, were to assist them in getting up noon-day kitchens and to supplement their rations by CARE packages. This has had a tremendous effect upon morale, and lost time from work has decreased considerably.

DR. SCHREINER: Those are very interesting observations on Europe. Now, what did you find in the Near East?

DR. PAGE: In Saudi Arabia, for example, the routine diet of the nation lacks many food essentials. Chronic diseases—trachoma, tuberculosis, malaria, are very common. If these people could only be taught facts, such as we in this country take for granted—for example, the value and need of good drainage, screening, and so forth, plus the essential water supply, modern sewage system, the value of

foods that should be eaten—many of these diseases would, in time, cease to exist.

In India, Siam, the Netherlands East Indies and China, the health situation, from a medical point of view, is a terrific problem because of the density of population. Medical educational facilities are at a minimum, and basically, from my observation, all teaching is done from the standpoint of curative medicine—the use of drugs and surgery to cure disease. The method, in reality, pays but little dividends from a long-range medical point of view.

DR. SCHREINER: I think that it is certainly important to us to know just what the health problems are. Now, the principal thing is, what can be done about it? Should we send medical supplies and drugs to them, or should we see that printed material on our techniques be made available to them? What do you think is the solution to that question?

DR. PAGE: We should do both. But from a long-range point-of-view, it seems to me that our problem is largely one of education. We should help teach people to live within their physical and mental capacities, how to detect the earliest signs and symptoms of common disease, and lastly, but equally important, how to keep *out* of hospitals. Teach them how to live well and maintain normal health. One step in this direction is to place greater emphasis on the need for clinics rather than hospitals.

DR. SCHREINER: DR. PAGE, would you define for us the distinction between a clinic and a hospital?

DR. PAGE: I define a hospital as a medical unit in which people needing medical treatment must be confined to bed. This, as we know, is very costly, and unless a hospital is organized efficiently, it may be considered as detrimental, rather than beneficial in a constructive medical program.

DR. SCHREINER: And how would you define a clinic, as opposed to a hospital?

DR. PAGE: A clinic, on the other hand, is a medical unit in which individuals may receive immediate care without need of hospitalization. A clinic may be so constructed that large numbers of people may be taken care of relatively efficiently and at a minimum cost and time. Now it is in the clinic where I believe our educational program can best be advanced. The clinic can teach people how to avoid disease, how to prevent conditions which might later cause them to be hospitalized. Clinics cost less to establish and maintain, than hospitals. Therefore, more of them can be set up, and with a greater number of clinics, preventive medicine can be brought to increasing numbers of individuals.

DR. SCHREINER: Are you recommending such a program to your affiliates?

DR. PAGE: Yes, without question. This program is most important. I regard the conclusions mentioned as fruits of my recent world tour.

DR. SCHREINER: Ladies and gentlemen, you have just heard a first-hand report on the world health situation by DR. ROBERT COLLIER PAGE, General Medical Director of Standard Oil Company (New Jersey) who has recently completed a 35,000-mile tour of 22 foreign countries. Thank you very much for being with us, DR. PAGE.

LETTERS

Facilities for Training in Industrial Medicine

TO THE EDITOR: I have just read the very interesting article by W. P. SHEPARD, M.D., entitled "What Kind of Specialty is Industrial Medicine?" which appeared in the June, 1948, number of INDUSTRIAL MEDICINE. I should like to state that I am in general agreement with the ideas expressed by DR. SHEPARD, but there are two points on which I should like to comment.

The first point appears in the last paragraph of the section "Industrial Medicine is a Specialty," near the top of the second column on page 209. Unless I am mistaken, what DR. SHEPARD meant was that there is *no* general agreement on the kind of training needed to produce the specialist in industrial medicine. If this is not the intended meaning, then I am afraid I must disagree on this point.

Toward the end of the article, DR. SHEPARD asks the question "Why not encourage more schools of public health to provide facilities for the adequate training of physicians seeking careers in industrial medicine?" It is my opinion that training facilities existing today are more than adequate to meet existing demands. The schools of public health at Columbia, Harvard, Johns Hopkins and Yale have been and are offering graduate training in industrial medicine. Cincinnati, Pittsburgh and Wayne Universities have been offering equivalent or similar instruction, and there are other schools at which training can be obtained. As far as I am aware, none of these other schools has been embarrassed by having too many applicants. At Columbia our capacity has not been taxed, to state things mildly.

I believe that there are many excellent young physicians who would like to avail themselves of these educational opportunities but who are unable to do so for financial reasons. Fellowships carrying reasonably liberal stipends are readily available for candidates interested in public health. It is at this point that DR. SHEPARD'S analogy between public health and industrial medicine no longer holds true. I am afraid that the "strike" or "shock" that is needed is the old familiar one with a dollar sign in front. The AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS has recognized this and is doing something about it through its Foundation of Occupational Health. Until we have found a means for subsidizing graduate students in industrial medicine I believe there will be no necessity to encourage more schools of public health to set up training programs in industrial medicine.

One more word. Subsidies used for training public health officers come almost entirely from governmental sources. Should we look in that direction, or will private enterprise meet the challenge?

—LEONARD J. GOLDWATER, M.D.,
Professor of Industrial Hygiene,
Columbia University School of
Public Health.

COMMENT and OPINION

GENERAL MOTORS points out in its annual report that: "In 1947 expenditures for safety and health protection amounted to approximately $13,000,000." —*Industrial Hygiene Digest.*

Cut Fingers

CUT fingers in factories cost nearly £1,000,000 a year in sick pay compensation, the Parliamentary and Scientific Committee has been informed by the Medical Research Council.

—*New York Times*, July 6, 1948

Walking

IF YOU have been told to reduce by taking plenty of exercise and have heard that walking is the best of all forms, a professor at the University of Michigan medical school reports that you would have to walk 36 miles a day in order to rid the body of one pound of fat. It's pretty discouraging.

—*Hospital Topics*, July, 1948.

Absentee Quits

ONE industrial relations director reports that about 25% of his absentees for the day are really quits looking for new jobs. A few of these find better jobs, but most of them lose in the bargain, for the wage structure is pretty uniform throughout industry. Also, a new employee usually starts at a lower rate and loses his seniority which he piled up on his old job. —*Management Guide*, 5th Issue.

Housecleaning

IN A statement to the House of Delegates of the Oregon State Medical Society, May 1, 1948, GOVERNOR DEWEY voiced his opinion of "compulsory socialized medicine" (see our I. M. August Editorial, page 324). At the conclusion of his talk one of the delegates asked, "If you get to the White House what are you going to do about Falk, Altmeyer and their crew?" He replied, "Gentlemen, there will be the greatest housecleaning Washington has ever see..."

Panorama

LOW salaries are keeping doctors out of industrial medicine, says AMA Bureau of Medical Economic Research; it wants this specialty taken off "bargain counter"...."Health officers do not dare tell the full truth about the baleful effects of alcoholic beverages on human health," says DR. HAVEN EMERSON, famed educator. Health departments have also failed to warn public sufficiently against self-medication with habit-forming drugs and dangerous sedatives, he charges.

—*Medical Economics*, August, 1948.

Example

IN ONE small plant of less than 1000 employees, a male nurse serves as director of the health, safety, and welfare department. His ability to organize all of these services under one head and to prove his value by figures and graphs has caused management to place him on a salary of $5000 plus travel expenses. This is a step in the right direction. He has set a precedent of valuable service for which management expects to pay. As more nurses with advanced education and progressive ideas fit into the industrial pattern, there will be better generalized health education available to management and to the workers with resulting higher salaries. The nurse referred to above has contributed something to the field of industrial health. Because of his example of service and salary, other nurses even better prepared will be interested in working as health consultants to industry. Standards will be higher, management will have a more enlightened concept of the position and abilities of the highly skilled nurses who are engaged in this work.

—From "The Nurse as Industrial Health Counselor," by MYRTLE MILLER, R.N., in *Public Health Nursing*, March, 1948.

The Physics of Smelling

THE ability to smell is made possible by sense organs which act as radio transmitting stations sending out impulses at extremely high frequencies, according to Yale University psychologists. This idea upsets previously held notions that the nose can smell because odorous substances set up chemical reactions and it moves the olfactory sense into the realm of radiation physics. It may have important practical implications for certain industries and will take the guesswork out of smelling substances used in those trades—it establishes a scientific basis for what the nose does and why.

—*Medical Times*, March, 1948

Be Your Age!

A WORD to the wise: One of the picnic programs recently submitted by a local showed a "Fat Men's 50-Yard Dash" on the docket of morning events. Without opposing fat men, it should be pointed out that local unions must take the same safety precautions in their recreation that they take in the shop. And ask any doctor about the dangers involved when a guy nudging 40 and racking up an over-225 on the scales takes off on a 50-yard sprint. A heart attack as a result of picnic frolicking doesn't come under the heading of recreation. Check your program for safety....In the very near future watch for a complete discussion of all the safety elements in recreation activities. In the meantime, let your good judgment be your guide.

—*Ammunition*, published by UAW-CIO, August, 1948.

Keeping Him Well

KEEPING the workman at work by keeping him well is the job of the plant manager and general practitioner as well as the doctor and nurse in industry, declares DR. ELSTON L. BELKNAP, Milwaukee, head of the occupational medicine division, Marquette university school of medicine. "Management knows that ill health in the worker slows up production and cuts dividends. The worker knows that health is precious because the lack of it means that his family may go hungry. The doctor and nurse in industry as in private practice are primarily interested in keeping their patients well," DR. BELKNAP writes in the June issue of the *Wisconsin Medical Journal*, published by the State Medical Society. He says that 70% of industrial medical practice is preventive medicine. "Facts plus teamwork, equal health," is his formula for keeping the worker healthy. Facts come from books, reports, and industrial health clinics like those recently held

in Neenah, Beloit, Racine and Madison by the State Medical Society and the state board of health, he said. Teamwork results when doctors "come down out of ivory towers of pure medical science" and together with management and engineers, "roll up their sleeves and study the work conditions of men as they work with dusts, fumes, vapors and gases, as well as dirt and grease."

—*La Crosse, Wis., Tribune & Leader Press*, July 8, 1948.

Taxpayers' Money Used to Encourage Hostility

ONE of the greatest obstacles met in a long continued effort to improve the methods of administration of the Workmen's Compensation Act has been the rapidly waning respect which the courts, the legal profession, and the employers of labor have for physicians, particularly the specialists. It would be stupid indeed to imagine that our system of practice can continue to survive in an atmosphere of general public hostility. The fact that a governmental bureau is using taxpayers' money in a vigorous campaign to discredit the profession and to stimulate a clamor for state medicine is responsible for much, but not all, of this public dissatisfaction.

—*North Carolina Med. J.*, July, 1948.

The National Health Assembly

THE whole meeting seemed to be packed with a designated, specific purpose, namely, for endorsing Federalization of medicine. There were assembled some eight or nine hundred individuals; a very cosmopolitan group composed of scientists, doctors, researchers, labor people, welfare workers and most important of all, most of those people were from the Federal government and principally from the Federal Security Administration. They seemed to have priority of receipt of invitations. Some of the speakers who represented labor and other groups could hardly speak English. The renowned Dr. Mike Davis made a statement that "the more the AMA opposes Federal health insurance the more surely will the country be driven into state medicine."

—*New Orleans Med. & Surg. J.*, June, 1948.

New Style Social Security

ADOPTION by New Jersey of Governor Driscoll's plan for insuring employees against loss of wages due to illness and off-the-job accidents may mark the beginning of a new era in the development of social security. Hitherto, the battle over social security has been one of sharp conflict between those who favored the principle and those who opposed it. In the sickness insurance program, Governor Driscoll fought a two-front war, against those who opposed the extension of social insurance and against those who insisted upon a sweeping, unsound and thoughtless program. The outcome, happily, is a law that is likely to function with a minimum of abuse. Much overhauling is needed in our Federal and supplementary state social security projects. It has not been possible to obtain a fair hearing for reform proposals because the advocates of social security have rightly suspected the sincerity of some reform advocates who may in reality be seeking to scuttle rather than reform the program. The great need has been a convincing demonstration of constructive reform. The New Jersey sickness insurance program is such a demonstration. Here we have a plan that will provide minimum benefits for the sick without burdening payrolls disproportionately, without being subject to wholesale abuse and without obliterating or discouraging flexible arrangements between employers and employees for better benefits than those offered by the state fund. The success of the New Jersey plan would go far toward convincing die-hard enemies of social security that the abuses of the program are not inherent in the principle; it should also go far toward convincing the defenders of social security that not all critics are insincere and destructive. There is much that needs correcting in the old age pension plan and in other phases of social security. The success of New Jersey in adopting a sickness insurance program free of the reckless features of the Rhode Island plan should lead to a new era of sound legislation in the whole field of social security.

—*Newark, N. J., Star Ledger*, May 16, 1948.

Here We Go

ONE of the functions of WHO, as laid down in Chapter II, Article 2 of the Constitution, is "to study and report on, in cooperation with other specialized agencies where necessary, administrative and social techniques affecting public health and medical care from preventive and curative points of view, including hospital services and social security." The problem of the organization and extent of medical care for the entire population or groups thereof now constitutes a basic item of many health programs. Many different forms of organization exist, varying from the voluntary for selected groups to uniform state-operated systems which embrace the whole population. Legislative aspects of medical care have received attention from ILO, and the International Labour Conferences have made recommendations from time to time.

—From the Provisional Agenda, First World Health Assembly, Geneva, Switzerland, June 24, 1948.

Lead Poisoning Booklet

LEAD INDUSTRIES Association, New York City, has published a booklet combining reprints of three papers on important aspects of health control in industrial lead workers delivered at a recent meeting of the Association. WILLIAM C. WILENTZ, M.D., medical director of the Perth Amboy Plant of the National Lead Company, in "A Medical View of the Lead Problem," discusses in turn the employer, employee and community factors of the problem and presents a series of 10 conclusions looking toward their control. LLOYD E. HAMLIN, M.D., medical director, and HERBERT J. WEBER, industrial hygienist of the American Brake Shoe Company, set forth their views on the medical and engineering aspects of prevention of lead intoxication among brass foundry workers in two concise and well-illustrated articles. Copies of this triple reprint may be had from the Lead Industries Association, 420 Lexington Avenue, New York 17, N. Y., at 50c each while the limited edition lasts.

Prevention of Silicosis

AS SHOWN by Lanza, prevention of silicosis is entirely possible if engineering methods can be applied to control or remove the dust at its source. This is expensive, but "so is the provision of safe drinking water. People have been educated to spend enormous sums of money to provide safe drinking water but they have not learned to be as intelligent about providing a safe atmosphere to work in." Medical supervision is as essential in the prevention of silicosis as the installation of engineering controls. In some places it is almost impossible en-

tirely to control the escape of silica dust into the atmosphere. Industry which has a silica dust hazard should be under medical supervision. Although the actual supervision of safety measures must necessarily be the responsibility of competent foremen, experiences show that workmen quite often, despite medical and supervisional warning, will not take necessary precautions which are available to protect them from a dust hazard. The medical department should see that workers have frequent chest x-ray inspection for evidence of early silicosis, and at the first sign of its development advise other employment. The physician should show the x-ray films to the worker and explain the condition. In this way HAMLIN found that employees expressed an appreciation of the interest taken in them and better followed the physician's advice. Many had refused to wear respirators but when informed they evidenced new interest in the protection of their health. Our suggestion is that x-ray be more generally used in pre-employment and at regular intervals thereafter. Laws are now in effect or are being passed in all states to allow workmen's compensation for silicosis. They might be established to permit the employer to dismiss a worker at once, without interference from the union, if he does not carry out safety rules. Unfortunately we lack cooperation. If only the labor unions would realize that we are all on the side of humanity the path would be easy.

—From "Silicosis as Viewed by an Internist," by W. BERNARD YEGGE, M.D., in *Diseases of the Chest*, July-August, 1948.

Medical Care vs. Gadgets

WHICH is more important—an operation or a television set? A doctor's prescription or an evening at the movies? A hospital check-up or a wrist watch? Many Americans, the Brookings Institute of Research has found, habitually skimp on medical care rather than deprive themselves of gadgets and entertainment. The average person today spends a lower percentage of his income for medical care than he did in the depression years. In the post-war inflationary cycle other essentials have increased in cost far more than medicine, while non-essentials such as alcoholic beverages, recreation and jewelry have soared to new highs. In reporting to a U. S. Senate committee studying public health problems, the research organization bluntly stated that much of the pressure for compulsory government medicine plans arises from the disinclination on the part of many families to put medical care ahead of non-essentials. This disinclination, the report added, is "often confused with inability to pay." People who would never dream of asking the government to subsidize the cost of a new automobile somehow believe Uncle Sam should pay for having their tonsils removed.

—*Jackson County Medical Society Weekly Bulletin*, August 7, 1948.

In French Factories

HEALTH services in French factories and offices are being reorganized under a two-year health plan which was started at the end of 1946. When the plan is in full operation, all industrial establishments with more than 2,250 employees and all commercial establishments with staffs of more than 3,000 will each have at least one full-time doctor. "Under the new scheme a worker must be given a medical examination with lung radiograph eight days before being employed," an official of the medical inspection service of the ministry of labor said. "The examination has a two-fold aim, first to see if the worker is medically suitable for the work envisaged, secondly to disclose if he has any contagious or infectious disease which might endanger the health of the other workers." Workers must also be examined regularly during employment. The works doctor has other duties in addition to examining the workers periodically. He must be consulted before any new production process is introduced in the factory to insure that the health of the workers is not endangered. He is also responsible for the general hygiene of the factory. A number of factories and industrial organizations already have their own doctor—for example, two big nationalized concerns: the Renault motor works in Paris and the French railways, which, with 450,000 employees, is, after the French army, the largest employer in the country. "The health services of the French railways have been greatly developed recently," a railway medical official explained. "In addition to having our own doctors, we have our own sanatoria and preventoria. We have also four trains fitted with x-ray apparatus which travel all over the country. By this means, radiologists are able to examine the workers regularly. In 1940, the number of cases of tuberculosis among railway workers was eight per 1,000. Today it is two per 1,000." On the advice of the railroad doctor at Austerlitz Station in Paris, for instance, an instrument called a "Hygiaphone" was installed in ticket offices at the beginning of 1947. This consists of a protective screen which allows passengers while buying their tickets to speak to the ticket clerk, but does not permit germs to pass into the ticket office.

Chicago Tribune, July 9, 1948.

Get a Copy and Read It

SENATOR H. ALEXANDER SMITH, chairman of the subcommittee on Health of the Senate committee on Labor and Public Welfare invited the Brookings Institution to study the problem of medical care for the individual and to prepare a memorandum which might be helpful to his committee in the evaluation of pending legislation on the subject. This study is now available for your own review in a statement of the issues and the conclusions published by the Government printing office and in the full text as "The Issue of Compulsory Health Insurance" by the Brookings Institution. I think you should procure one or the other of these and examine it carefully for some of the querulous old voices who have been preaching the socialism of medicine under one guise or another have begun to yelp that the report is biased—as though their own schemes have been free of bias. These tired old voices will have nothing to do with the conclusions that "the advances in health among the whites and the non-whites that have been made in the United States in the past four decades do not suggest basic defects in the American system; present medical care in the United States compares favorably with that which existed in other leading nations prior to the second World War; the so-called draft statistics are unreliable as a measure of the health of the nation and cannot be used to show the extent of the medical needs of the country as a whole; the large majority of American families have the resources to pay for adequate medical care (4% of income) if they elect to give it a high priority among the several objects of expenditure; the issue is not whether

they can afford medical care but whether they should be compelled by law to pool their risks; compulsory health insurance would necessitate a high degree of governmental regulation and control which would be far more difficult than any other large field previously entered by the government, and past experience with governmental regulations and control in the United States causes doubt as to whether it encourages initiative and development; the injection of the government into the relationship between practitioner and patient risks impairing that relationship and hence the quality of medical care; the cost of medical care would increase because of administrative expense, the tendency of the insured to make unnecessary and unreasonable demands, and the tendency of some practitioners to use the system for their own financial advantage." The tired old voices of social ferment want nothing to do with a report which refutes with facts the major arguments proposed by the backers of government health insurance, and if you want to spot them easier, get a copy of the report and read it!

—WILLIAM BROMME, Editor's Page, *Detroit Medical News*, May 31, 1948.

In-Plant Medical Meetings

CHENEY Brothers Manufacturers in Manchester, Connecticut, together with DR. ROBERT P. KNAPP, Medical Director of Cheney Brothers, served as hosts to this Committee, May 28, 1947. Preliminary to the meeting the members were escorted through the entire plant on an inspection tour. The tour covered every process in the manufacture of silk and rayon fabrics beginning with the drawing board to the finished product. Discussions were held incident to the accident and health hazards in the plant and the methods used to safeguard the employees' health. The inspection tour included a trip to the parachute testing field. The test demonstrations simulated all possible flying conditions encountered by a dropping parachute. Following a delightful dinner, MR. HENRY R. MALLORY, Executive Vice-President of Cheney Brothers, spoke on the influence and value their medical department had on the employees of their company from the standpoint of economy and human salvation. The industrial medical program of this company was inaugurated in 1915 and is one of the oldest in the country. The facilities for protecting the health and welfare of the workers were found to be excellent. The trip to Cheney Brothers was extremely valuable; all members had broadened their knowledge of industrial medicine....The Committee was the guest of the Pratt Whitney Division of the United Aircraft Corporation, November 19, 1947, in East Hartford. A total of 30 physicians attended this meeting, some of whom were consultants to the industry. The total attendance was 43, which included safety inspectors, industrial nurses and insurance personnel. The tour was precisely timed and managed. The innumerable intricate manufacturing processes and their related health hazards were observed and discussed. The tour included a most interesting lecture and demonstration of the principles of jet propulsion. Following the tour the group was escorted to the Safety Department and the Main Plant Hospital. These departments were found to be totally complete, with personnel and equipment to carry out every requirement of industrial medical practice. Following an enjoyable dinner MR. J. L. BUNCE, Factory Manager, spoke on the subject of Human Relationship and Technological Problems in industry and how they are mutually dependent upon good industrial medicine. MR. M. F. BURKE, Personnel Director, spoke on the value of the prevention of occupational injuries and disease. This in-plant type of meeting has proved to be invaluable to the members of the Committee.

—From the Report of the Committee on Industrial Health, in *Connecticut Med. J.*, May, 1948.

Physician the Key Figure

THE first principle of control of worker health with which the physician in industry must acquaint himself is this knowledge of the mechanism of absorption and actions of poisonings of many different types. Here as in other medical fields, the physician is the key figure and must realize that he is the expert on whom industry must rely. Of course, if the physician is able to give no answer, industry will naturally turn to a layman for advice. If the physician does not have the initiative or interest to keep himself abreast of new developments in the chemistry of industry, he must not be surprised if he is relegated to a position of secondary importance. Therefore it behooves the physician to be informed if he would retain this hard won commanding position. Occupational medicine, as practiced now, is certainly not a narrow specialty. One cannot work long with it before he finds that it demands all the medical skill which one uses in the other branches of medicine. Special training is needed for the diagnosis, treatment, and estimate of temporary and partial permanent disability both from injury and occupational disease. Of even greater importance, however, are pre-employment, inventory, or placement, physical examinations as well as periodic examinations given to prevent disability in industry. These require a full knowledge of general medicine. As physicians, our responsibility is not only to diagnose and treat the poisonings in industry, but also to advise the industrial commission, the employer, and the worker whether there has been permanent damage from the poison absorption and, if so, how much residual damage in actual percentage. This is not so simple as estimating percentage range of motion lost as compared with amputation. It involves detailed study of functional reserve of the heart, liver, and kidney, a challenge to the best practice of general medicine. Even though a physician does not limit his practice to occupational or industrial medicine, he will be much better able to render proper service to his patient if he always remembers to ask himself this question "What is the occupation of my patient? Is this case of acute belly pain appendicitis or lead poisoning? Is this acute pumonary edema due to heart failure or is it a cadmium fume intoxication? Is this severe anemia, pernicious anemia or is it benzol poisoning? Is this case of apparent acute Bright's disease with swelling of the feet, high blood pressure and blindness perhaps carbon tetrachloride poisoning? Or is this case of jaundice, severe anemia due to an acute gall-bladder, or is it perhaps actual arsine poisoning?" As long as we have industry growing more complex each day, we physicians must be informed as to the chemicals used in industry. We must be familiar with the technics and hazards of industry so we may be forewarned. We must not remain aloof in our laboratories as the shrines of abstract science of medicine. We must work with the worker and the engineer in their work-places if we are to prevent

industrial disability. We must remember that here, as in the practice of general medicine, we are dealing with the art of medicine. Just as urged on us hundreds of years ago by Hippocrates and Ramazzini there is no single step by which we can shortcut our study of the whole picture of disease. The prophylactic control of poisonings or disease process in the worker at work is the goal of every industry, management, engineering and medical department, and certainly of every physician who qualifies himself to act as a consultant in occupational medicine.

—From "Occupational Medicine, Past and Present," by ELSTON L. BELKNAP, M.D., F.A.C.P., in *Wisconsin Med. J.*, June, 1948.

Security

EVERYBODY, these days, is thinking about security. And we should be. But the very importance of security should make us take special care to be realistic in our thinking about the subject. To depend on a life raft and then to find, when the ship sinks, that the raft is unseaworthy is disastrous. Feelings of insecurity produce many problems in industry. Some industries have gone far in supplying material security for their employees. In government, civil-service practices attempt the same thing. But this approach to the problem fails to relieve the *individual's feelings* of insecurity. It fails so often that we may begin to suspect there is no relationship between material security and the inner feeling of insecurity. Psychiatrists with wealthy patients should know this. I am convinced that it is true. I saw and lived, years ago, among aboriginal Indians and others living in a state that we would consider semi-starvation, in constant danger from the perils of the jungle and tropical disease, who showed every evidence of enjoying a state of feeling secure almost beyond the conception of civilized people today. A recent article about the Marshall Islanders emphasizes the same point. Such observations aroused in me a special interest in the subject of security. And further study has led me to conclude: Security, the feeling, is a state of mind. Feelings of insecurity are another symptom of mental disease, common among civilized normal people. Promising to relieve feelings of insecurity, by material means, gives temporary hope and relief, but ends up by creating bitter resentment. The recipient finally reacts as if those who promised relief had deliberately deceived him. And the bitterness of such recipients against their alleged benefactors is far greater than it is against those who never pretended to try to help them. Russia seems to know this. If this be true, the attempt to relieve the feelings of insecurity by material means may be one certain way to create future enmities. I have seen many individuals in whom such enmity had developed on this basis. On the contrary, a very different approach seems to produce good results. So far as I can observe, the one thing that cures feelings of insecurity in individuals has been any proper, fair, legitimate means of getting them to realize that no one but themselves could solve their problems for them. Then, second, to get them to settle down and meet their own responsibilities face to face and solve them for themselves, by their own methods, as best they could. Out of this latter approach, the individual gains in self-confidence, feels more satisfied with himself, and gains increasing feelings of security. In this new state of mind, what actually happens to him materially becomes, strange as this may sound, less important to him than the way he meets and handles it. Then—and I suspect only then—can he enjoy a sense of security in this mad, changing world in which we live.

—From "Constructive Forces in the Job," by FREDERICK W. DERSHIMER, M.D., in *Mental Hygiene*, July, 1948.

Oneida, Ltd.

ROUNDING out Oneida's safety program are medical and welfare services, coordinated for the health and happiness of employees. One full-time doctor remains on the firm's premises all day, and is on call all hours of the night. Four registered nurses are on duty at the central plant during all shifts—two on the day shift, and one on each of the night shifts. One registered nurse is on duty at the knife plant five days a week. The company's two-bed first aid room is open not only to employees, but also to members of employees' families who may be treated free of charge for minor accidents or ailments. A summer camp on Oneida Lake is maintained by the company where employees may spend their vacations at a moderate fee. Rentals range from $12 to $15 per week, depending on size and type of cottage. Oneida workers receive a one week paid vacation each year during the first five years of their employment, and two weeks thereafter.

—*Industrial Bulletin*, New York, August, 1948.

Industrial Safety Conference

THE President's Industrial Safety Conference will be held in Washington, D. C., September 27-29. The U. S. Department of Labor is in charge of planning for the conference, which will seek a nation-wide prevention of work injuries and deaths.

United Mine Workers

THE establishment of a large medical center for injured coal miners, to be built at a cost of several million dollars, is being studied by the medical advisory board of the United Mine Workers of America Welfare and Retirement Fund. The announcement came only two weeks after the victory scored by John L. Lewis and the United Mine Workers in negotiations in Washington. At that time they compelled the bituminous coal operators to agree to double their payments to the fund, increasing it to $100,000,000 annually. DR. R. R. SAYERS, chairman of the medical advisory board of the fund, is in charge of the program. He is a former director of the Bureau of Mines, Department of the Interior, and also is medical director of the United Mine Workers of America. Preliminary studies now before the medical advisory board are based on a 200-bed hospital, and the board has estimated that the cost will range from $13,000 to $20,000 a bed. The institution would have a staff of eminent specialists in various fields, the announcement said.

—*New York Times*, 97:21, July 19, 1948.

INDUSTRIAL MEDICINE

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Adult Education Begins at Home

MUCH has been said and written about adult health education, until now the expression has become common. One wonders, at times, whether it might be possible to improve the status, adult-educationally, of those who are interested in the practice of industrial medicine on a small or part-time basis.

One of our esteemed colleagues and associates writes us as follows:

"In my experience, which is not inconsiderable, whenever a patient is involved in damage from such substances as carbon monoxide, chlorine, sulphur dioxide, nitrogen oxides, ammonia, etc., he is prone to develop a devastating neurosis even though the exposure be trivial in the absence of organic sequelae.

"When such cases are handled in industry by physicians somewhat familiar with such states the prospects of functional disorders as sequelae are low. On the other hand, when these same conditions fall into the care of the general run of physicians, little experienced, their uncertainties growing out of unfamiliarity, may be the foremost influence in stirring up a mental perturbation that presents itself as anxiety tension.

"When the usual physician handles a case of scarlet fever, a disease far more significant than trivial gassing, he is on such familiar ground that his attitude practically never foments an anxiety neurosis. Confronted with asphyxiation or electrical injury or kindred states, however, he is prone to protect his uncertainty as to outcome by many injudicious statements as to what could happen in the near future as a result.

"One of the outstanding jobs of every physician in the handling of such matters is at once to institute such sane psychotherapy as may be justified. You may recall from reading in *Occupational Medicine,* in the August, 1947, issue, in an article devoted to the chlorine accident in Brooklyn some months earlier, that 16 to 29 patients developed anxiety reaction with phobias, hysterical phenomena, etc., lasting from one to 16 months and in the absence of all organic disease.

"As a consultant, I am frequently called upon to investigate claims for long periods of alleged disability following trifling accidents of the character mentioned. The patients usually exhibit nothing organic, but they believe themselves to be frightfully injured, prospectively damaged for life, and altogether undergo a great deal of unnecessary misery, often becoming a litigation problem. In such situations, I am tremendously impressed that the physician is chiefly responsible for the causation of these emotional aftereffects and contrariwise might have forestalled the evil happenings had his professional attitude from the outset been a proper one. All of this relates to lack of training of physicians to the point of their knowing just what is expectable in the presence of minor injury from toxic gases, vapors, fumes, etc. The physician himself being inadequately qualified creates or helps create these unhappy affairs."

This reminds of the need for constant study and observation in fields in which we have not been originally brought up, so to speak. There is a story which may be remembered in elementary German, in which a peasant one day came to the residence of the pastor and was informed by the pastor's wife that the pastor was in the study for the purpose of studying—this may seem all too obvious as one reads it now, but the peasant was amazed that the pastor was still studying.

WHAT is the possible solution of this problem? There have been a number of undergraduate and graduate courses given in industrial medicine, and there are many instances of where physicians have actually "read the book." But it seems that there is still a great need for leavening theoretical and didactic work by actual experiences.

We have seen a number of instances where it was possible to allay the fears of employees and employers by proper environmental hygiene studies, establishing the fact beyond question that the exposure was insufficient to cause any injury. The results of such scientific studies have been used to quiet the fears of employees, by being phrased in well-interpreted paragraphs and either put on the bulletin board or published in the plant magazine. On some occasions these statements from scientific studies were thus used where there had been no complaints whatever; in other instances, they were availed of where complaints had been made by employees. There are also examples of where the entire community had been fearful lest the health of employees be injured by working in a nearby plant; these fears were eased by the similar use of scientific data. And there have been other instances where a great deal of trouble has been prevented, even after claims for compensation were filed and in which employees were misled by their own tensions and anxieties, where there was no organic effect whatever.

Thus there is a definite industrial and public relations value in the proper use of scientific industrial hygiene information.

THE need for and the value of psychosomatic medicine in industrial organizations have already been proved by the recorded experiences of a number of prominent industrial physicians. The application of psychosomatic medicine to the problems of the general practitioner, whether he handles industrial cases or not (and much more important if he does), was very eloquently demonstrated before the Section on General Practice of Medicine at the 96th Annual Session of the American Medical Association, at Atlantic City, June 11, 1947, by DR. WALTER C. ALVAREZ, in the Centennial Address entitled "Psychosomatic Medicine that Every Physician Should Know" (*J.A.M.A.*, 135:704, November 13, 1947).

"Every physician must know much about psychosomatic medicine if he is to avoid making many diagnostic mistakes, ordering many futile operations, and scaring half to death many organically sound patients. He must see that many of his patients are ill because of inborne nervousness, constitutional frailness, excessive worry or excessive strain. He must also see that none of the tests on which he relies for a diagnosis will reveal a neurosis or psychosis or nervous breakdown. There is still great need for taking a good history and for sizing up the patient....Recently three important points have come home to the medical profession: (1) that a poor nervous inheritance, unhappiness and strain can cause neuroses; (2) that they can bring to light organic disease or cause flareups of such disease, and (3) that in many cases of organic disease the symptoms are all those of a complicating neuroses....One cannot trust one's ability to diagnose a neurosis or psychosis by exclusion because too many inconsequential findings are disclosed by the examinations. One of the greatest arts needed in medical practice today is that of disregarding findings which cannot explain the symptoms....What is to be done to improve matters? The family physician must more often stick to his strong impression that the patient is neurotic and the syndrome functional in nature. All physicians need more training in recognizing promptly the common neuroses just as they recognize whooping cough the minute they hear it. They must recognize nervous breakdowns, tired vision, air hunger, hyperventilation, globus, nervous whispering, palpitation, regurgitation, abdominal quivering, repeated belching, heartburn, nervous bloating, the 'sore colon' syndrome, nervous diarrhea, nervous types of pain, the nervous bladder, psychosomatic rheumatism, migraine, the 'nerves playing trick' syndromes and equivalents of epilepsy. When it comes to treatment the physician must resolve never again consciously to use placebos of diagnosis. When it says the trouble is functional he must go on taking a history until he knows what one of the 20 or 30 types of functional trouble it is. Only then can he treat intelligently and successfully. Many persons with nervous troubles can be greatly helped by any friendly, sensible, philosophically inclined physician. The worst ones should be sent to a psychiatrist."

That such things occur rather commonly in industry is now well known. A brief case history will illustrate: A man of 36, apparently organically sound in every respect after numerous diagnostic tests and examinations and whose environment and occupational exposure were not sufficient to cause trouble, had been to several private physicians and been told that his occupation was the cause of his apparent difficulties—nervousness, inability to sleep, some loss of weight, globus, hyperventilation, and a general feeling of uneasiness. It was advised that he discontinue his occupation and go on another type of work, which he did, after which he continued to have the same symptoms, developing a marked distaste for the former job—even when he went past the scene of it he had feelings of nervousness. At the moment, this man is getting psychotherapy because it has been decided that he has actually developed a neurosis concerning his job, which should be controlled before it goes any further.

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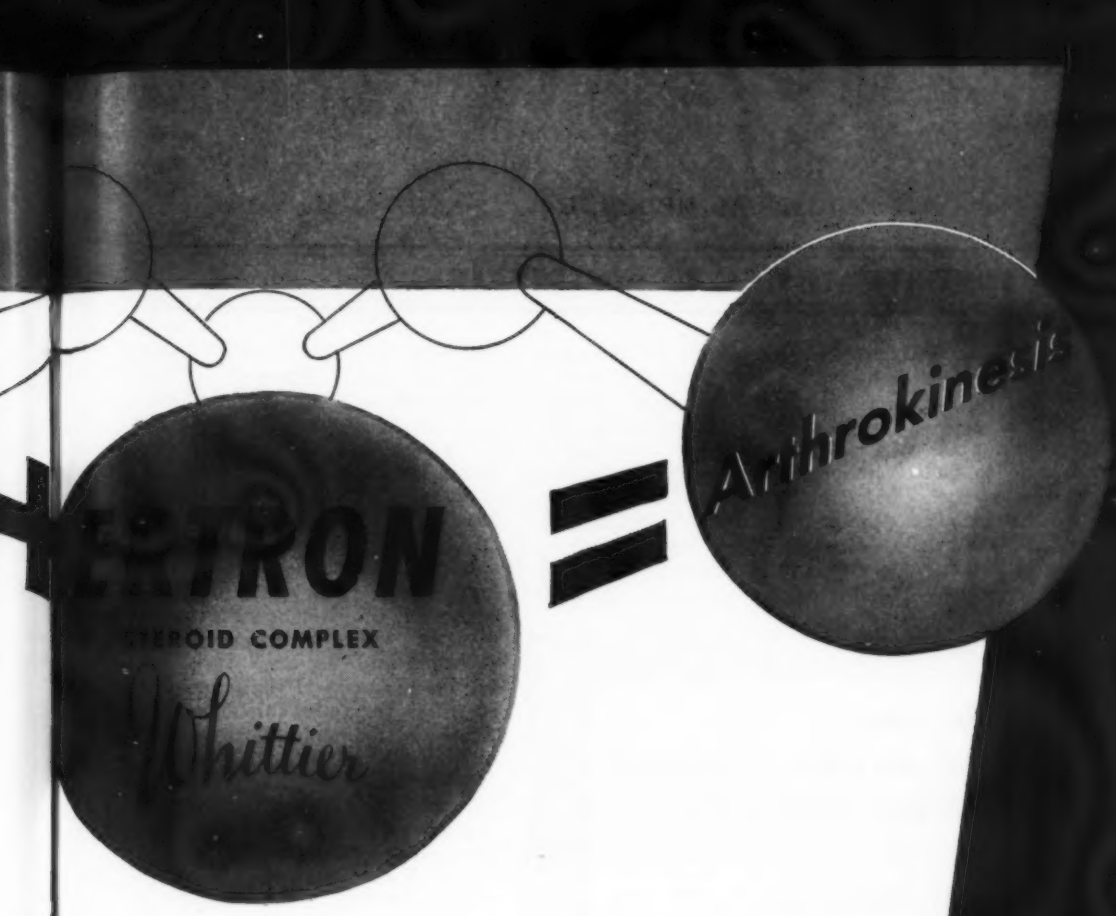

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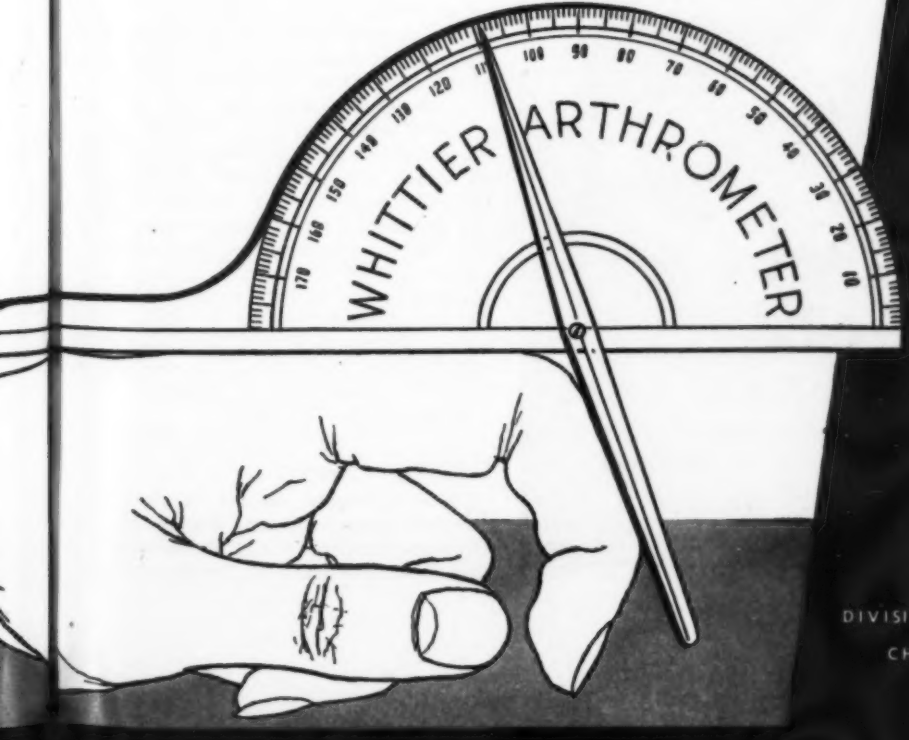

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INDUSTRIAL HEALTH and DISEASE

Alcoholics Anonymous

THE increase in alcoholism in the United States constitutes a health problem. Modern medicine regards alcoholism as a sickness whose etiology is to be sought in the personality of the excessive drinker and in his social milieu. Apparently Alcoholics Anonymous is effective in a considerable proportion of cases because of psychologic implications inherent in the method. Ritchie notes that the membership, starting from 100 in 1939, has grown to more than 40,000. Alcoholics Anonymous is a program of rehabilitation created and administered by the alcoholic addicts themselves. The organization is open to everybody without regard to economic status, sex, religion or color (the last with some reservations). The groups are supported by voluntary contributions of their own members. Public solicitation of funds is rejected as dangerous; acceptance of large gifts from any source is considered unwise. The principle of anonymity has an invaluable spiritual significance. The *A. A. Grapevine*, which is the national organ of the Alcoholics Anonymous, serves as a medium of expression and as an instrument for the diffusion of the principles on which the fellowship operates. The basic principle which the alcoholic addict must accept on joining Alcoholics Anonymous is the total abstinence from alcoholic beverages. The attitude of Alcoholics Anonymous toward the alcoholic addict is thoroughly modern so far as it considers alcoholism a sickness and the alcoholic addict a sick man. By accepting the view that he is sick, that his drinking is the manifestation of a deep-seated compulsion, the alcoholic addict is relieved of moral responsibility for his past drinking behavior. The informal group meetings place the alcoholic addict in a social situation in which he has status and prestige; he is accepted as a full-fledged member of an in-group. The novice is encouraged to strive for but twenty-four hours' sobriety, which of course is a much less formidable and less terrifying prospect than abstinence for life. The acceptance of a "Power greater than ourselves" is considered by the great majority of members as the core of the movement. Ritchie believes that the therapeutic effectiveness of Alcoholics Anonymous comes from its use of a spiritual force to attack the narcissism of the alcoholic addict. This aspect of the movement, many members insist, is to be regarded not as religious but as spiritual. According to the reports emanating from the central office of Alcoholics Anonymous 75% of those who "really try" obtain a cure. This is a high rate of recovery judged by any standard.

—*J.A.M.A.*, August 21, 1948.

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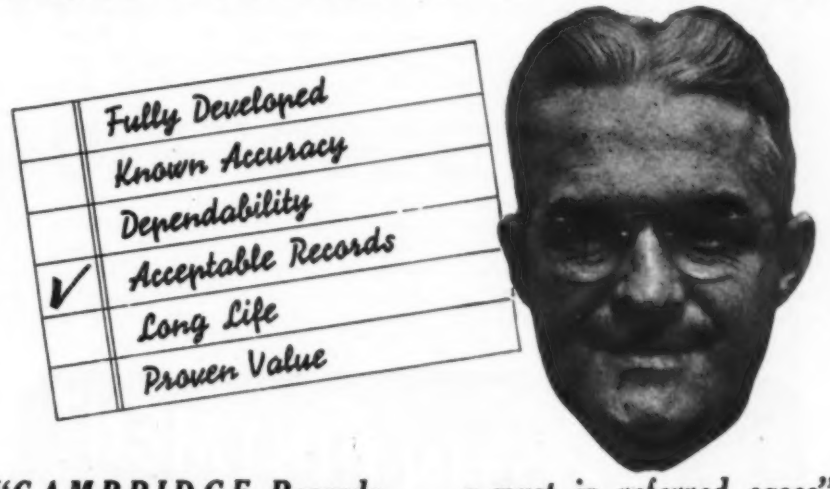
Self-History Form

AMONG several recent health publications from Stanford University Press is "Patient's Self-History Form," an inventory

prepared by OLIVEB E. BYRD, ED.D., M.D., for the use of physicians and hospital administrators. DR. BYRD is well known in the field of health, notably for his Health Instruction Yearbook which has appeared annually since 1943, and for his manual Workbook for Health. He is professor of health education and director of the Department of Hygiene, School of Education, Stanford University. The Patient's Self-History Form is designed as a time-saver. As such it should be widely used, for with the postwar upswing in population, medical men, like so many others, are busier than they've been in years. The inventory is brief but inclusive, eight pages in all. It covers five main subdivisions—Family Health, Social History, Hospitalization, Work Experiences, and Military Experience. Under these headings only pertinent questions are asked, and there are blanks for the patient to fill out himself. Other information is requested on personal problems, disease history, vaccinations, operations, accidents, organic disturbances, health habits, and weight. This gives the physician a working basis to follow in preliminary interviews with individual patients. Adequate space is provided for his summary of significant data. The Patient's Self-History Form grew out of a similar questionnaire prepared by DR. BYRD, Personal Health Inventory, which is used successfully in school health departments throughout the United States.

WHAT YOU GET IN A CAMBRIDGE



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CAMBRIDGE ELECTROCARDIOGRAPH

AND THE CAMBRIDGE ELECTROKYMOGRAPH, PLETHYSMOGRAPH, AMPLIFYING STETHOSCOPE, RESEARCH pH METER, BLOOD PRESSURE RECORDER, LINDEMANN ELECTROMETER, ETC.

Those Women

APROPOS of DR. CAREY MCCORD'S comment in his "A Blind Hog's Acorns" about women being "more dirty" than men and columnist Herb Graffis' excitement about it in a metropolitan daily newspaper, the following appeared in the May issue of *Motor News* in a letter to the Editor: "They say everything has two sides. Regarding *Motor News* article 'Roughing It In Restrooms,' here is another side taken from a paragraph in *Reader's Digest*, and I am sorry to say it is true: 'We operate gas stations on a Parkway, with exceptionally high-class patronage. Yet so badly were women's restrooms messed up we had to provide for half-hourly inspections. The station manager has to go in each restroom, sign a card every half hour, and we check on reports. Women, with few exceptions, leave a disordered restroom. Men are not all they should be, either, but inspection and cleaning once a day is enough for them.'" MCCORD says "It is hard to believe that three times as much janitor work is necessitated in some work places for women as for men."

The Point of View

BY REASON of the difference in their objectives (the part of general medicine being to care for the patients' needs from day to day, while that of life assurance is to forecast the life expectancy of the class) it is, and no doubt will continue to be, difficult for general medicine and life assurance to regard impairments with equal concern. This is particularly true of such impairments as overweight, tuberculosis, hypertension, heart or kidney disease. Physicians in general do not fully realize that a small increase in the number of deaths per year per thousand at any given age means a definite increase in mortality. At age 40, if the number of deaths per year per thousand living increases from 5.84 to 8.76, the mortality rate increases from 100% to 150%. If a physician should have 1000 patients of the age of 40 years, and prophesy that 994 would survive the year, whereas only 991 did, he would not be at all likely to consider himself a poor prophet; yet in life assurance this would represent a mortality of 50% in excess of that provided for.

—From an Address by SAMUEL J. STREIGHT, O.B.E., M.D., Medical Director, Canada Life Assurance Company, March, 1941.

Cost of Administration

THE cost of administering the German health insurance program is estimated at 9.6% of total expenditure for the program in 1914, and 6.8% in 1925. This decrease in cost is due more to the soaring in expenditure than to greater administrative efficiency. If the legal and postal services performed free of charge by the government, and the bookkeeping costs of employers are calculated, the expenses are considerably higher. Perhaps a more accurate picture is given by the fact that four Fund workers were employed for every three insurance doctors. During the period of German health insurance, the duration of illness increased progressively from 14.1 days per illness in 1885 to 29.3 days per illness in 1932. The latter figure is 70% higher than in the United States. Cash benefits, which were often almost equal to full wages, made it possible for the worker to take a paid vacation on sick leave at the Fund's expense. Supervising doctors, appointed to curb such abuses, found up to 50% of the persons on sick lists able to work. A similar situation exists under England's compulsory health insurance program. During the depression, an emergency measure required the payment of a small fee for medical services and prescriptions; insurance claims promptly dropped more than 50% in many companies. The principle of risk-sharing, used by private insurance companies, has been recognized by other health insurance countries; in France and Denmark, 15 to 25% of the costs of medical care are paid by the insured.

—*Ohio State Med. J.*, Aug., 1948.

Medical Advisers

WHEN DR. VICTOR D. WASHBURN became acting health commissioner re-

Rx DESITIN OINTMENT
The External Cod-Liver Oil Therapy
USED EFFECTIVELY IN THE TREATMENT OF
Wounds, Burns, Ulcers, especially of the Leg, Intertrigo, Eczema, Tropical Ulcer, also in the Care of Infants
Desitin Ointment contains Cod-Liver Oil, Zinc Oxide, Petrolatum, Lanum and Talcum. The Cod-Liver Oil, subjected to a special treatment which produces stabilization of the Vitamins A and D and of the unsaturated fatty acids, forms the active constituent of the Desitin Preparations. The first among cod-liver oil products to possess unlimited keeping qualities, Desitin, in its various combinations, has rapidly gained prominence in all parts of the globe.
Desitin Ointment is absolutely non-irritant; it acts as an antiphlogistic, allays pain and itching; it stimulates granulation, favors epithelialisation and smooth cicatrisation. Under a Desitin dressing, necrotic tissue is quickly cast off; the dressing does not adhere to the wound and may therefore be changed without causing pain and without interfering with granulations already formed; it is not liquefied by the heat of the body nor in any way decomposed by wound secretions, urine, exudation or excrements.
DESITIN POWDER
Indications: Minor Burns, Exanthema, Dermatitis, Care of Infants, Care of the Feet, Massage and Sport purposes.
Desitin Powder is saturated with cod-liver oil and does not therefore deprive the skin of its natural fat as dusting powders commonly do. Desitin Powder contains Cod-Liver Oil, (with the maximum amounts of Vitamins and unsaturated fatty acids) Zinc Oxide and Talcum.
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for Treatment of All Other Burns

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Accurate uniform Dosage • No bottles, no distilled water required
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Antiseptic • Astringent • Stable • No lead • Economical
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cently he did so, he made clear, partly on condition that he would have the cooperation of the city authorities. These included, particularly, the Mayor and Council and of course the Department of Health working personnel. Unless we hear something to the contrary we will assume DR. WASHBURN is getting this active, sympathetic good-will and support. Now we are glad to learn that his own profession has formally pledged its cooperation with him in the public interest. The New Castle County Medical Society has appointed a Medical Advisory Committee for the city Board of Health, upon the board's invitation. The society, accepting, expresses pleasure at being asked to advise. It says it will take the assignment seriously. In fact the society makes it the express "duty" of the committee to serve upon request of the board. (Doctors don't need to be dentists to put teeth into a resolution.) The three distinguished physicians on

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A Biographical Dictionary of the Notable Physicians and Surgeons, Hygienists and Dentists in Industrial Medical Practice and Related Activities

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the advisory panel all have real qualifications in matters of public health. DR. BOINES, as a recent member of the board itself, will have the current health situation at his fingertips, administratively and otherwise. DR. HANDY is a specialist in child health and "catching" diseases. DR. MCGEE, medical director of the Hercules Powder Co., knows his industrial medicine. We hope the Board of Health will make full use of these advisers—to the extent, let's say, of asking for reports and recommendations that would take real study to formulate. A lot of good might come out of that sort of thing.

—Wilmington, Delaware, *Journal Every Evening*, May 22, 1948.

The Answer

THE question, "How Can Medicine Best Serve the Industrial Worker?" invites a frank answer. On this forthright basis then, it would seem the broad answer can be stated in these simple terms: By developing general recognition on the part of the medical profession that industrial medicine and surgery is a specialty in the same way that internal medicine and pediatrics are recognized as specialties and that such being the case, the treatment of industrial injuries and diseases must be rendered by men who are fully trained and qualified in this field.

—From an Address, "How Medicine Can Help the Industrial Worker," by CHARLES E. HODGES, President, American Mutual Liability Insurance Company.

DR. PILGRIM

NOW busy with routine in the office, especially the consideration of manuscripts and laboratory work, but not too busy to appreciate the excellent playing of The First Piano Quartette and the program of the Piano Playhouse in a Gershwin Memorial....AND reading some latest books, technical and non-technical, and much interested in LUDWIG TELEKY'S new volume "The History of Factory and Mine Hygiene"....AND enjoying luncheon with DR. PETER NASH, of London, and DR. CARL PETERSON, at the University Club, and much impressed with some of the programs being put into effect in England; and, meantime, back to A.M.A. headquarters to talk to DR. ERNEST BROWN anent residencies and fellowships in industrial

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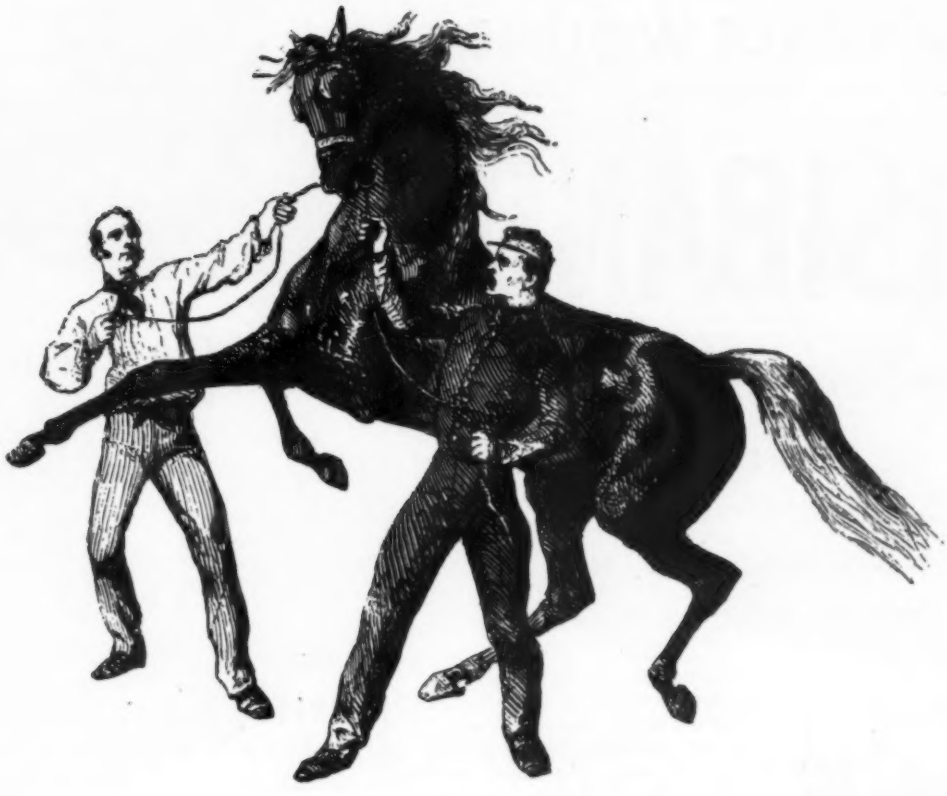
medicine. . . .AND enroute to Terre Haute, Indiana, for a mine investigation of several days, with gathering of air and material samples, and in spite of the hot weather on the surface, finding it quite comfortable underground . . . .AND back to the desk and, the preparation of one of the largest service questionnaires ever to be devised, sent out by the American Association for the Advancement of Science. . . .AND to Union Station to meet sister-in-law OLGA and niece JOAN, coming through from Detroit on their way to Wyoming for a vacation, and thence to the club for breakfast; and again to the station to make another train, and back to the club for the remainder of the afternoon for an airing and reading interesting mystery stories . . . .AND visiting with DR. B. N. LINGARAJU, of Mysore, India, and talking, among many things, of the differences between schedule and blanket coverage compensation laws, pointing out the advantages and disadvantages of each; and in the meantime concerned with several types of examinations with respect to alleged occupational disease, and the discussion of concurrent industrial hygiene and environmental exposures. . . .AND again visiting with the diagnostician for a check-up and finding things, as he says, "in status quo". . . . AND starting arrangements for a California trip, it being decided for the first time in a considerable number of years that there should be no profession or business aspects to this journey and vacation; and meanwhile busy with manuscripts and illustrations and trying to fit each to the other in some orderly fashion, while much interested and entertained with one of the concerts of the Berkshire Festival at Tanglewood, in which an all-Bach program was presented by the Boston Symphony, directed by Serge Koussevitsky—where there were beautiful concertos for three pianos and orchestra and also for flute and orchestra. . . . AND concerned with many excerpts and abstracts of interesting subjects, and these punctuated by long distance telephone calls on professional problems, clinical and environmental; and working on dust data with respect to a lengthy report and case reviews of various pending files. . . .AND in the throes of trying to finish numerous important (so-called) activities before embarking for the Pacific Coast; and finding, as usual, a number of things which must be done, and passing them on to others, so that there will be no neglect and no reason for delay or pressure.



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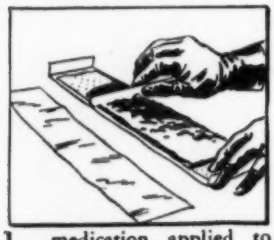

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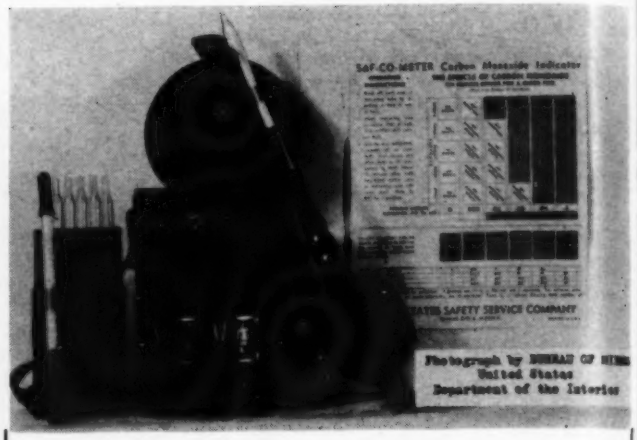

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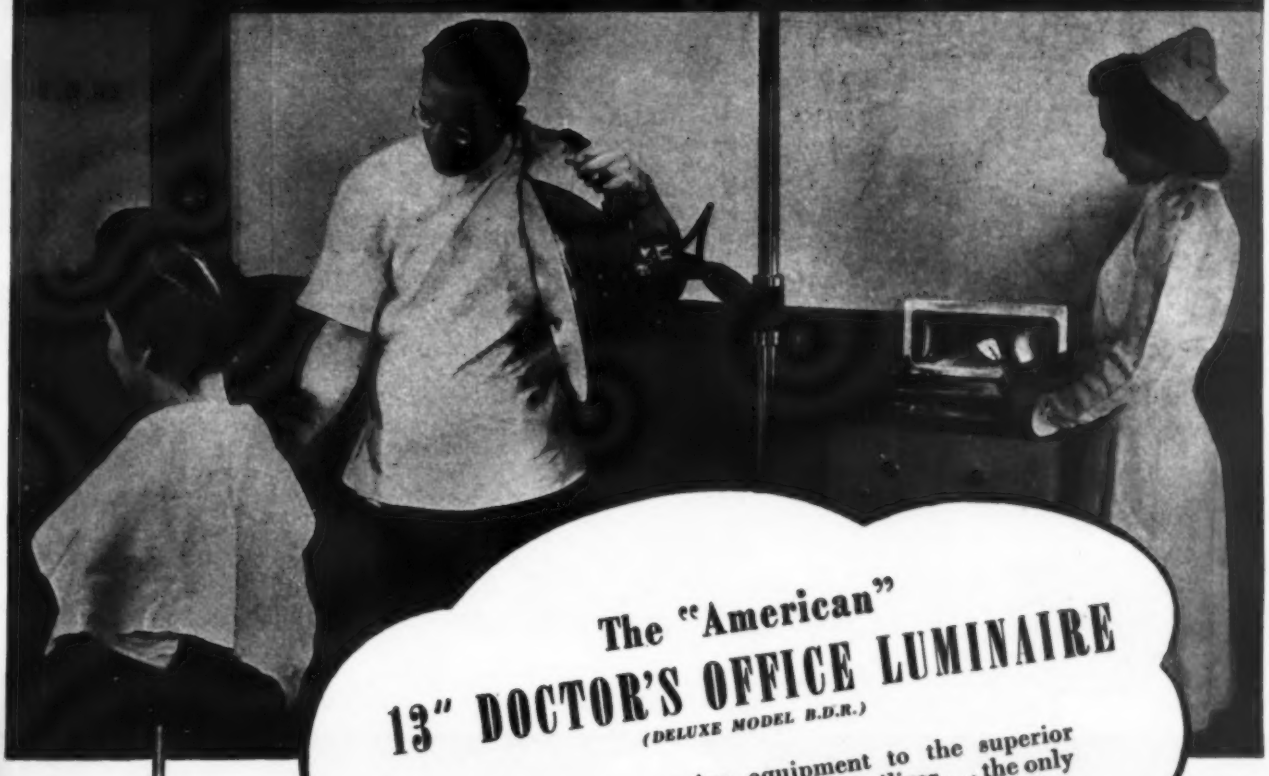

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SAME SIMPLE TECHNIQUE FOR BOTH

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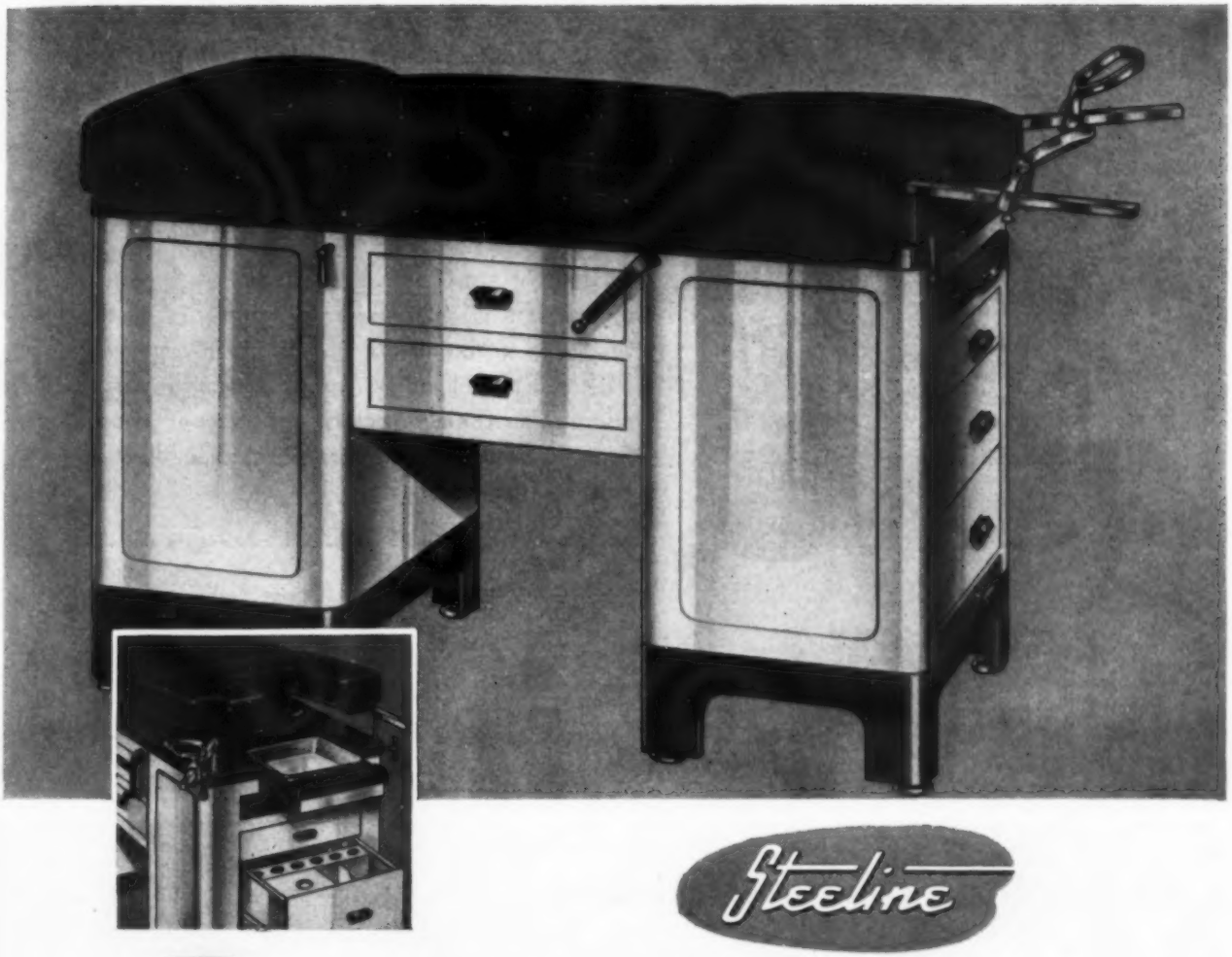

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IF the safety record of your company's employees is a responsibility of yours, you should be vitally interested in a program which has a proved record of reducing accident rates by amounts up to twenty per cent. Based on the scientific finding that *visual skills* are an index to workers' production efficiency and accident records, the Bausch & Lomb Industrial Vision Service is the result of more than eight years of scientific research. A complete, compact, and easily administered system, it assists in job placement and identifies workers who are most likely to benefit from professional eye care. In your plant, as in dozens of others, it can improve safety records, increase production, step up quality, reduce labor turnover and lower training costs. Send coupon for the whole story.

BAUSCH & LOMB

OPTICAL COMPANY ROCHESTER 2, N.Y.

SEND FOR THE DOLLARS-AND-CENTS FACTS ABOUT IMPROVED SAFETY RECORDS MADE POSSIBLE BY THE BAUSCH & LOMB INDUSTRIAL VISION SERVICE

Industrial Vision Department
Bausch & Lomb Optical Co.
602-V St. Paul St., Rochester 2, N. Y.

Please send me a copy of "Vision in Industry" and details of the Bausch & Lomb Industrial Vision Service.

NAME.....

TITLE.....

COMPANY.....

STREET..... STATE.....

CITY.....

New!

A SUN-HEAT LAMP YOU CAN FLOAT INTO A THOUSAND POSITIONS

ACCEPTED COUNCIL ON PHYSICAL MEDICINE AMERICAN MEDICAL ASSOCIATION

ADAPTED FROM THE POPULAR DAZOR FLOATING LAMP
DAZOR ALONE HAS THE FLOATING ARM
MOVES FREELY INTO ANY POSITION AND STAYS PUT— WITHOUT LOCKING

If you administer or prescribe infrared heat or ultraviolet radiations you'll certainly want to know about the Dazor—a new sun-heat lamp you can *float* into a thousand or more positions.

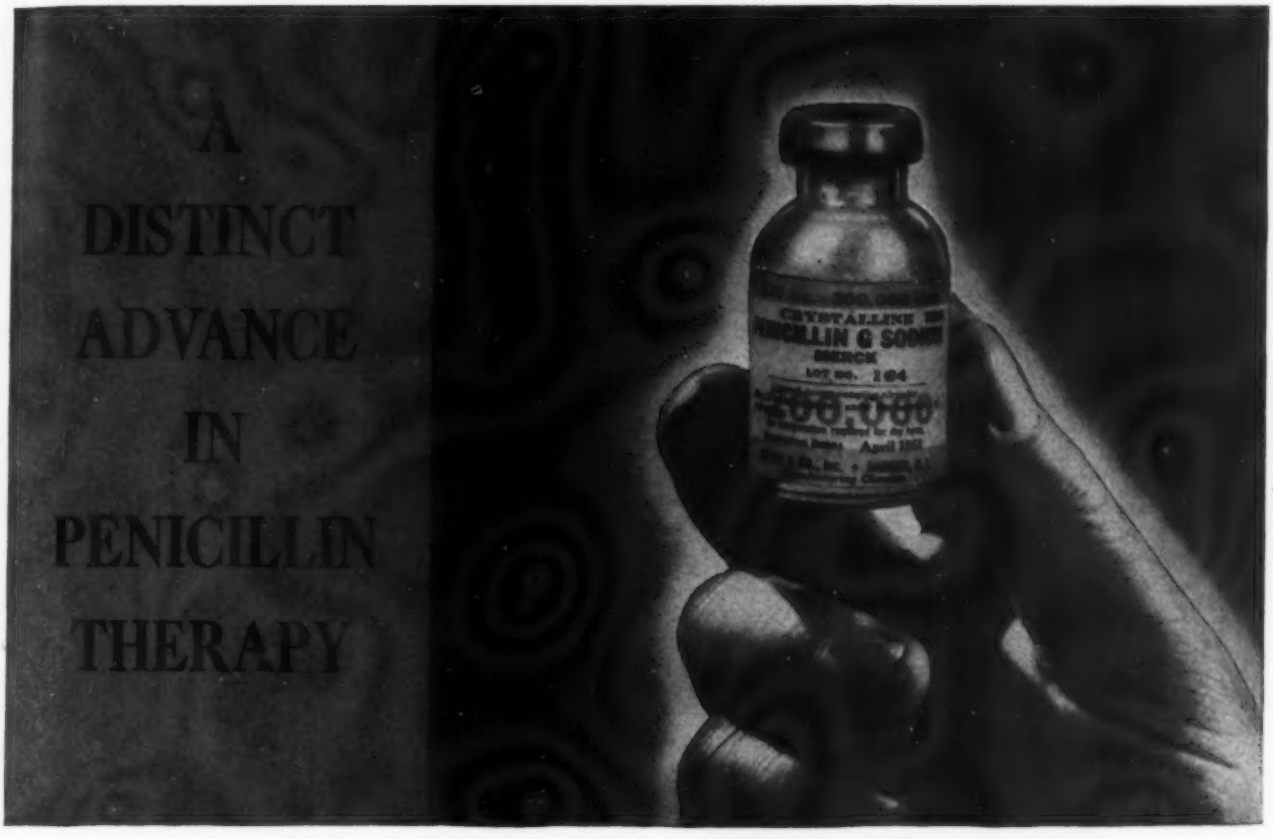
The patented *floating* arm (which gives all Dazor products their famed flexibility) permits you to raise or lower this lamp; to push or pull it; to turn or tilt it; to pivot the arm from side to side and to swing it completely around. Once guided to the point desired, a concealed mechanism holds the lamp firmly in place; there's nothing to fasten.

Any standard sun or heat bulb will fit the Dazor socket and will operate on 110-125 volt outlets—the sun bulb on AC only, the heat bulb on AC or DC. The lamp is equipped with a 9-ft. cord; its heavy base prevents tipping.

Modern in design and finish, quality-built and bearing the Underwriters' Laboratories approval, this new Dazor is a therapeutic aid you can use in your own private practice . . . suggest for patients' home use . . . recommend with assurance for industrial medical service.

If your supplier hasn't stocked these lamps, ask him to order them for you. Should he require the distributor's name, have him write Dazor Manufacturing Corp., 4481-87 Duncan Ave., St. Louis 10, Mo. In Canada address inquiries to Amalgamated Electric Corporation Limited, Toronto 6, Ontario.

DAZOR FLOATING SUN-HEAT LAMP



The development of Crystalline Penicillin G Sodium has effected a distinct advance in Penicillin therapy. Compared with earlier, amorphous preparations, this highly purified crystalline product affords several important advantages:

- **More predictable clinical results—because of high, uniform potency.**
- **Decreased tendency to certain side effects—therapeutically inert materials which may act as allergens have been virtually eliminated.**
- **Greater convenience for the physician—no refrigeration is required for the dry form.**
- **Less annoyance for the patient—pain and irritation at the site of injection have been considerably reduced by removal of impurities.**

CRYSTALLINE
PENICILLIN G SODIUM
MERCK

Council Accepted

MERCK & CO., Inc. RAHWAY, N. J.

Manufacturing Chemists

MERCK MERCK

more POPULAR than ever

THE Efficiency FILE

The doctors' favorite file just as it was before the war

It hasn't been changed because we couldn't make it better. It is far and away the finest and most efficient of doctors' files. It takes care of ALL of a doctors' records EFFICIENTLY AND ECONOMICALLY. It's an impressive piece of furniture, 18⅜" wide, 16" deep and 40" high, made of heavy-gauge steel with brass-plated hardware, a real paracentric key lock and an olive-green baked enamel finish.

EFFICIENCY WITH ECONOMY

The price is practically no more than in 1942! It's worth double. Because it lasts 25 or 50 years it costs but a dollar or two for every year that you own it.

ONLY $58.75 DELIVERED

Each one of the top four drawers will hold more than 1000 4" x 6" or 5" x 8" Record Forms. The big center file drawer takes thousands of letter or legal size papers. The locked compartment will hold dozens of books, important records, valuables etc.

ALL STEEL

the only file that takes care of

ALL OF A DOCTOR'S RECORDS

WALNUT, OR MAHOGANY FINISHES

The Efficiency File is also available in limited quantities in beautiful grained walnut or grained mahogany finishes at $71.25

SEE IT AND ORDER IT AT YOUR LOCAL SUPPLY HOUSE OR ORDER IT DIRECT FROM US BY USING THIS COUPON

PROFESSIONAL SALES COMPANY, INC.
15 East 22nd Street, New York 10, N. Y.

Gentlemen: Send me the Efficiency File.

____Olive Green, at $58.75.
____Walnut, ____Mahogany, at $71.25.
____Enclosed is remittance.
____Send C. O. D. plus collection charges:

Name_____

Address_____

AS HANDSOME AS IT IS SERVICEABLE

SOPRONOL POWDER FOR PROPHYLAXIS

Sopronol Improved offers the doctor a *physiologic* attack on fungi. It is based on a combination of propionates and caprylates, as found in human sweat. Sopronol augments Nature's own defense against invasive organisms.

Sopronol therapy is fatty acid therapy—now accepted as the modern treatment for dermatophytosis. It is showing an outstanding record of results.

Sopronol is mild, safe. It is virtually non-irritating, non-sensitizing, non-keratolytic.

SOPRONOL®

IMPROVED

propionate-caprylate compound

Wyeth®

PHILADELPHIA 3, PA.

OINTMENT
FOR DIRECT APPLICATION

Sodium propionate	12.3%
Propionic acid	2.7%
Sodium caprylate	10.0%
Zinc caprylate	5.0%

1 oz. tubes

DUSTING POWDER
FOR SOCKS AND SHOES

Calcium propionate	15.0%
Zinc propionate	5.0%
Zinc caprylate	5.0%

2 and 5 oz. canisters

LIQUID
FOR DIRECT APPLICATION

Sodium propionate	12.3%
Propionic acid	2.7%
Sodium caprylate	10.0%

2 oz. bottles

A Matchless Combination

OF AID-TO-SURGERY QUALITIES

Critical surgeons realize that blade dependability is predicated upon three vital characteristics — uniform sharpness throughout the entire cutting edge, adequate strength, and a degree of rigidity best calculated to resist lateral pressure.

RIB-BACK BLADES

excel in all three essential requisites. They provide matchless uniformity . . . each and every blade assuring cutting efficiency at its best. Their uniformly superior strength is a matter of record. Their degree of rigidity is reportedly highly satisfactory to the surgeon . . . *a matchless combination of aid-to-surgery qualities.*

Ask your dealer

BARD-PARKER COMPANY, INC.
Danbury, Connecticut

B-P

A BARD-PARKER PRODUCT

an entirely new approach to the treatment of pain

The intensity of pain is determined, in no small degree, by the patient's mood. It follows that any measure which will lessen your patient's preoccupation with his pain will actually make him feel his pain less.

EDRISAL contains two analgesics of established effectiveness. But, just as important, it also contains the logical anti-depressant, Benzedrine* Sulfate. Thus Edrisal not only relieves your patient's organic pain, but also relieves his anxiety over it. In Edrisal, therefore, you have a unique weapon—a double-barreled weapon—for the relief of pain.

Each Edrisal tablet contains acetylsalicylic acid (2.5 gr.), phenacetin (2.5 gr.), and 'Benzedrine' Sulfate (2.5 mg.). For samples and full information, write us at 429 Arch St., Philadelphia 5, Pa.

Smith, Kline & French Laboratories, Philadelphia

Edrisal

its dual action relieves pain • lifts mood

*T.M. Reg. U.S. Pat. Off. for racemic amphetamine sulfate, S.K.F.

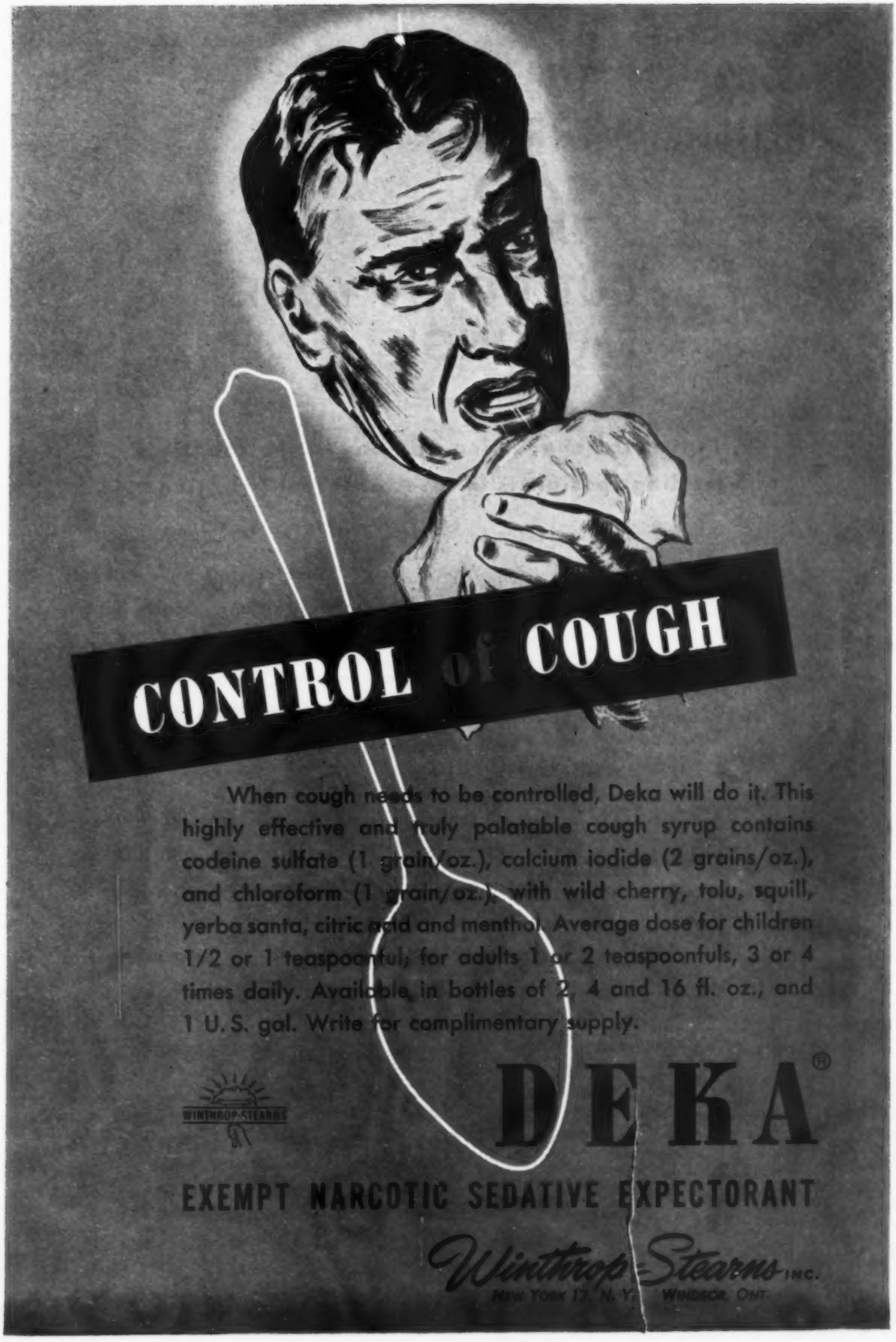
Photo courtesy University of Pennsylvania Museum.

B R E C K

Breck pH7 Protective Cream

Minor skin eruptions or irritations of the hands are often caused from using harsh soaps and detergents. Breck pH7 Protective Cream keeps dirt and grime from becoming embedded in the skin. Only mild soap and water are necessary to remove Breck pH7 Protective Cream. Physicians may want to recommend this type of protection to those whose work requires the use of harsh cleansing agents.

JOHN H BRECK INC . MANUFACTURING CHEMISTS . SPRINGFIELD 3 MASSACHUSETTS
CANADIAN ADDRESS . 310 SLATER STREET . OTTAWA


CONTROL of COUGH
When cough needs to be controlled, Deka will do it. This highly effective and truly palatable cough syrup contains codeine sulfate (1 grain/oz.), calcium iodide (2 grains/oz.), and chloroform (1 grain/oz.), with wild cherry, tolu, squill, yerba santa, citric acid and menthol. Average dose for children 1/2 or 1 teaspoonful; for adults 1 or 2 teaspoonfuls, 3 or 4 times daily. Available in bottles of 2, 4 and 16 fl. oz., and 1 U.S. gal. Write for complimentary supply.
WINTHROP-STEARNS
DEKA®
EXEMPT NARCOTIC SEDATIVE EXPECTORANT
Winthrop-Stearns INC.
New York 13, N. Y. Windsor, Ont.

"CHANGE TO PHILIP MORRIS

OR...

CUT DOWN YOUR SMOKING!"

That is the suggestion of many of the country's leading specialists in cases of throat irritation.*

Many doctors have among their patients some who they believe smoke too much. But the difficulty of persuading such smokers to cut down is familiar to everyone. What better advice therefore than *"Change to Philip Morris"*... the only leading cigarette proved definitely and measurably less irritating.

To minimize cigarette irritants, Philip Morris are made by a special process whose advantages are conclusively shown in published studies.** These studies may convince *you too* that the most effective advice for patients who smoke is *"Change to Philip Morris."*

PHILIP MORRIS
Philip Morris & Co., Ltd., Inc.
119 Fifth Avenue, New York

ARE YOU A PIPE SMOKER? . . . We suggest an unusually fine new blend — **COUNTRY DOCTOR PIPE MIXTURE**. Made by the same process as used in the manufacture of Philip Morris Cigarettes.

**Completely documented evidence on file.*

***Reprints on request:*

Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60; Proc. Soc. Exp. Biol. and Med., 1934, 32-241; N. Y. State Journ. Med., Vol. 35, 6-1-25, No. 11, 590-592.

This Frequent Offense Can Easily Undermine Good Nutrition

In spite of the increased interest of recent years in subjects of nutrition, the skimpy or skipped breakfast is still all too prevalent. In a wide segment of our population, breakfast often consists of little more than gulped morsels. Adults as well as teen-agers are prone to this offense to their nutritional well-being and with little apparent concern.

That skimpy breakfasts may be detrimental to the nutritional quality of the total daily dietary and contribute to fatigue, are the reported consensus of nutrition authorities in recent studies.† It was found that an inadequate breakfast imposed an almost impossible burden upon the other two meals of the day in supplying the required amounts of nutrients.

A basic breakfast pattern in full accord with the principles of sound nutrition, and widely endorsed by nutritionists, includes fruit, cereal, milk, bread and butter. Tastefulness, endless possibilities for variety, and economy adapt this basic breakfast pattern to universal use by adults and children. In most communities, it can be prepared at a cost of but 15 cents per person. The hub of this meal is the cereal serving consisting of hot or ready-to-eat breakfast cereal, milk, and sugar.

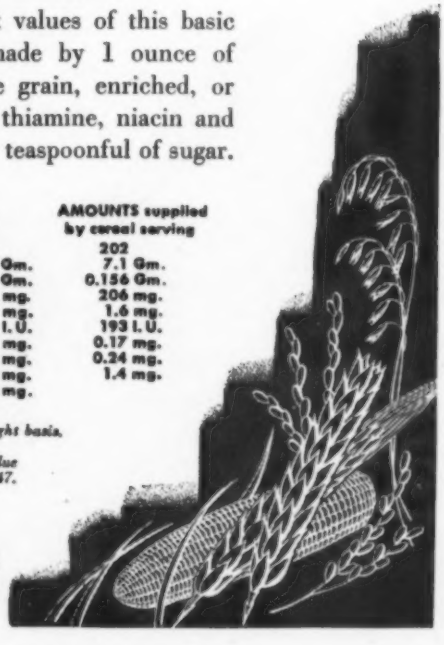
The table indicates the nutrient values of this basic breakfast and the contribution made by 1 ounce of ready-to-eat or hot cereal* (whole grain, enriched, or restored to whole grain values of thiamine, niacin and iron), 4 fluid ounces of milk, and 1 teaspoonful of sugar.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

BASIC BREAKFAST	TOTALS supplied by Basic Breakfast	AMOUNTS supplied by cereal serving
Orange juice, 4 oz.; Ready-to-eat or Hot Cereal, 1 oz.; Whole Milk, 4 oz.; Sugar, 1 teaspoon; Toast (enriched, white), 2 slices; Butter, 5 Gm. (about 1 teaspoon); Whole Milk, 8 oz.	CALORIES..... 611	202
	PROTEIN..... 20.7 Gm.	7.1 Gm.
	CALCIUM.....0.465 Gm.	0.156 Gm.
	PHOSPHORUS .... 488 mg.	206 mg.
	IRON ..... 3 mg.	1.6 mg.
	VITAMIN A..... 1074 I. U.	193 I. U.
	THIAMINE..... 0.52 mg.	0.17 mg.
	RIBOFLAVIN..... 0.87 mg.	0.24 mg.
	NIACIN..... 2.3 mg.	1.4 mg.
	ASCORBIC ACID .. 64.8 mg.	

*Composite average of all breakfast cereals on dry weight basis.

†Jackson, P., and Schuck, C.: Dietary Habits of Purdue University Women, J. Home Econ. 39:344 (June) 1947.



CEREAL INSTITUTE, INC.

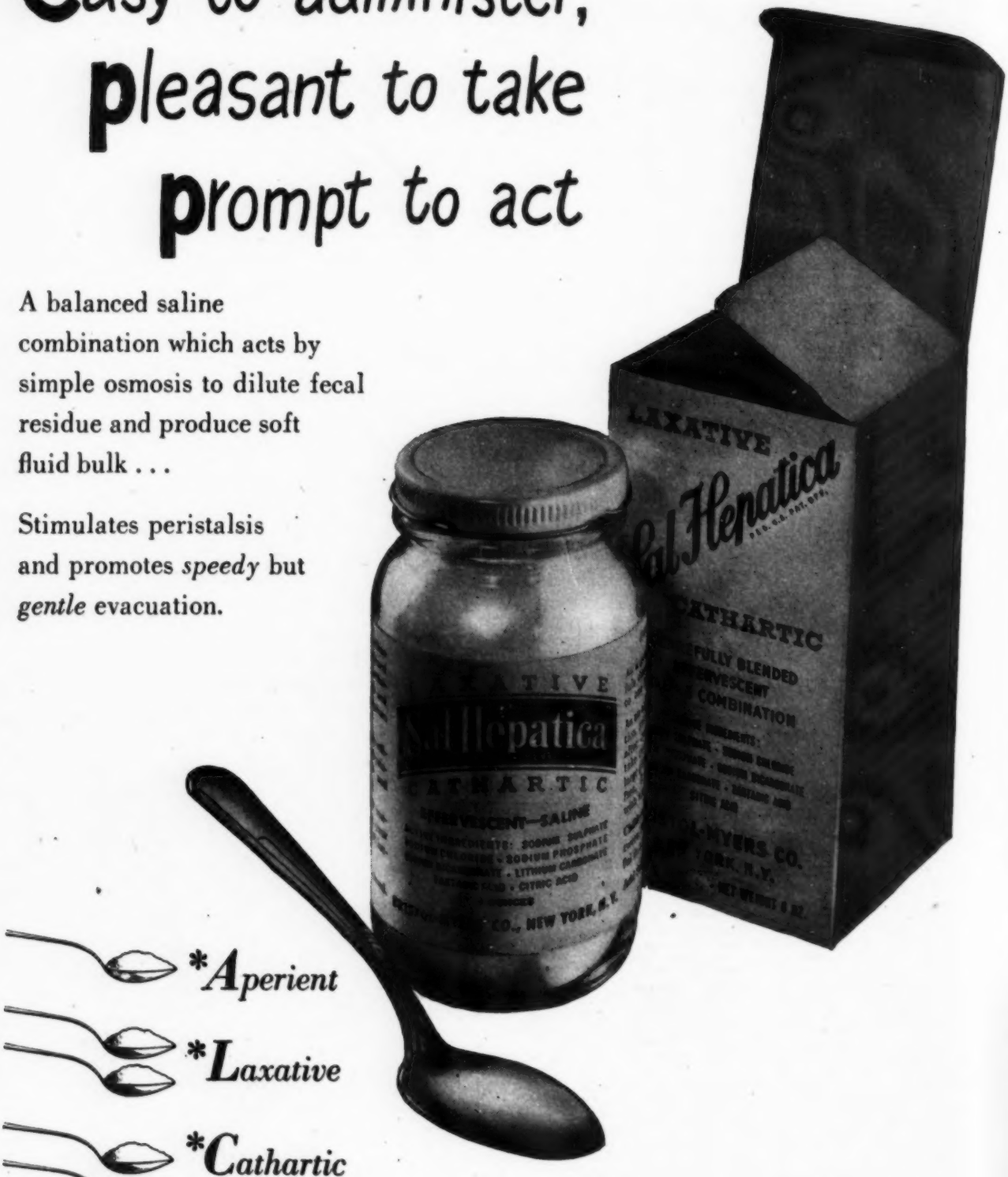
A research and educational endeavor devoted to the betterment of national nutrition.

135 South La Salle Street • Chicago 3

easy to administer, pleasant to take prompt to act

A balanced saline combination which acts by simple osmosis to dilute fecal residue and produce soft fluid bulk . . .

Stimulates peristalsis and promotes *speedy* but *gentle* evacuation.



*Aperient

*Laxative

*Cathartic

*Average dose

Product of BRISTOL-MYERS

19 West 50 Street, New York 20, N. Y.

RIASOL

A Star Performer in Psoriasis

That RIASOL plays the star role in the treatment of psoriasis is unquestioned by the thousands of physicians who have watched this prescription at work. No less enthusiastic are their grateful patients, especially when they see the ugly lesions clear up and gradually fade away.

Usually RIASOL clears disfiguring lesions promptly, results in fewer recurrences, provides cosmetic relief that in turn promotes self-confidence, and assures patient cooperation and satisfaction.

RIASOL contains 0.45% mercury chemically combined with soaps, 0.5% phenol and 0.75% cresol in a washable, non-staining, odorless vehicle.

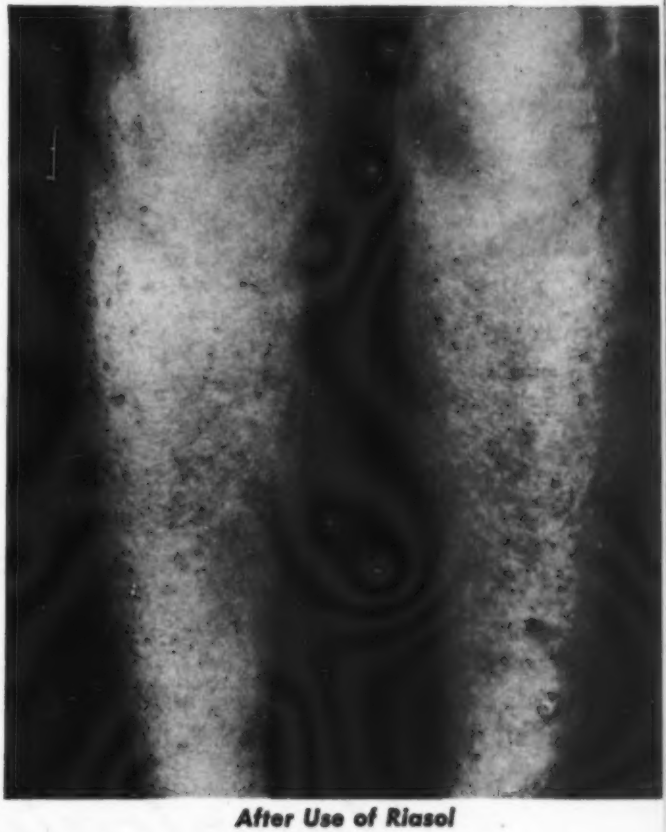
Apply daily after a mild soap bath and thorough drying. A thin, invisible, economical film suffices. No bandages necessary. After one week, adjust to patient's progress.

RIASOL is ethically promoted. Supplied in 4 and 8 fld. oz. bottles, at pharmacies or direct.

Mail coupon for your free clinical package. One trial will convince you of RIASOL'S value as an antipsoriatic.

MAIL COUPON TODAY —
PROVE RIASOL YOURSELF

Before Use of Riasol



After Use of Riasol

SHIELD LABORATORIES IM-9-48
12850 Mansfield Avenue, Detroit 27, Michigan

Please send me professional literature and generous clinical package of RIASOL.

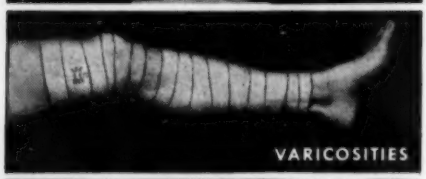
_____ M.D. _____ Street

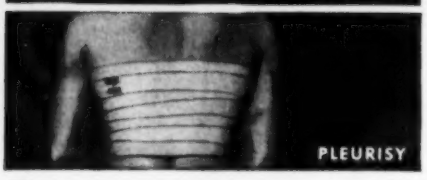
City _____ Zone _____ State _____

Druggist _____ Address _____

RIASOL for PSORIASIS

TENSOR* ELASTIC BANDAGE





IS WOVEN WITH

Live Rubber Thread

And that's the reason for TENSOR'S elasticity—TENSOR stretches to over twice its own length! *Live rubber* warp threads, sheathed in soft cotton yarn, "give" as bandaged parts move, yet provide therapeutic support.

Some common uses of TENSOR are shown at left. You'll find a host of others in your daily practice—and you can depend on TENSOR for efficient performance. Recommend TENSOR with confidence, for *any* elastic bandage use.

TENSOR has these advantages:

- exerts constant, controlled pressure without constriction.
- has *uniform elasticity*—rubberless bandages can't match its "stretch."
- *stays put*—no need for frequent readjustments; is comfortable to wear.
- *is inconspicuous*—women patients will wear TENSOR readily.
- withstands repeated laundering without loss of elasticity.

In 2 - 2½ - 3 - 4 and 6 inch widths by 5½ yards stretched.

*Reg. U. S. Pat. Off.

THERE IS NO BETTER ELASTIC BANDAGE THAN TENSOR!

A product of

BAUER & BLACK

Division of The Kendall Company, Chicago 16

TENSOR *Elastic* BANDAGE

New, More Effective Topical Anesthetic

AMERICAINE

THE ONLY OINTMENT WITH 20% DISSOLVED BENZOCAINE

Benzocaine, least toxic of known topical anesthetics, now has been brought to a new and unprecedented effectiveness in the unique, new development—AMERICAINE.

Benzocaine must be dissolved to be effective, and heretofore the maximum concentration possible in a bland, non-irritating, water-soluble base has been 2%.

Now, by means of a special chemical process developed in our research laboratories, we have succeeded in dissolving as much as 20% Benzocaine in a water-soluble ointment. This added potency (in solution) is absolutely necessary to provide adequate penetration for prolonged, effective anesthesia.

Americaine

REG. U.S. PAT. OFF.

TOPICAL ANESTHETIC OINTMENT

CLEAR OR WITH CHLOROPHYLL

—brings rapid and prolonged relief from pain and itching, and helps prevent surface infections in many types of injuries, burns and dermatologic conditions encountered in industry.

Your surgical supply dealer carries both Americaine Clear and Americaine with Chlorophyll in 1 ounce tubes and ½ and 1 pound jars.

AMERICAINE, INC. 166 WEST JACKSON BLVD. CHICAGO 4, ILLINOIS

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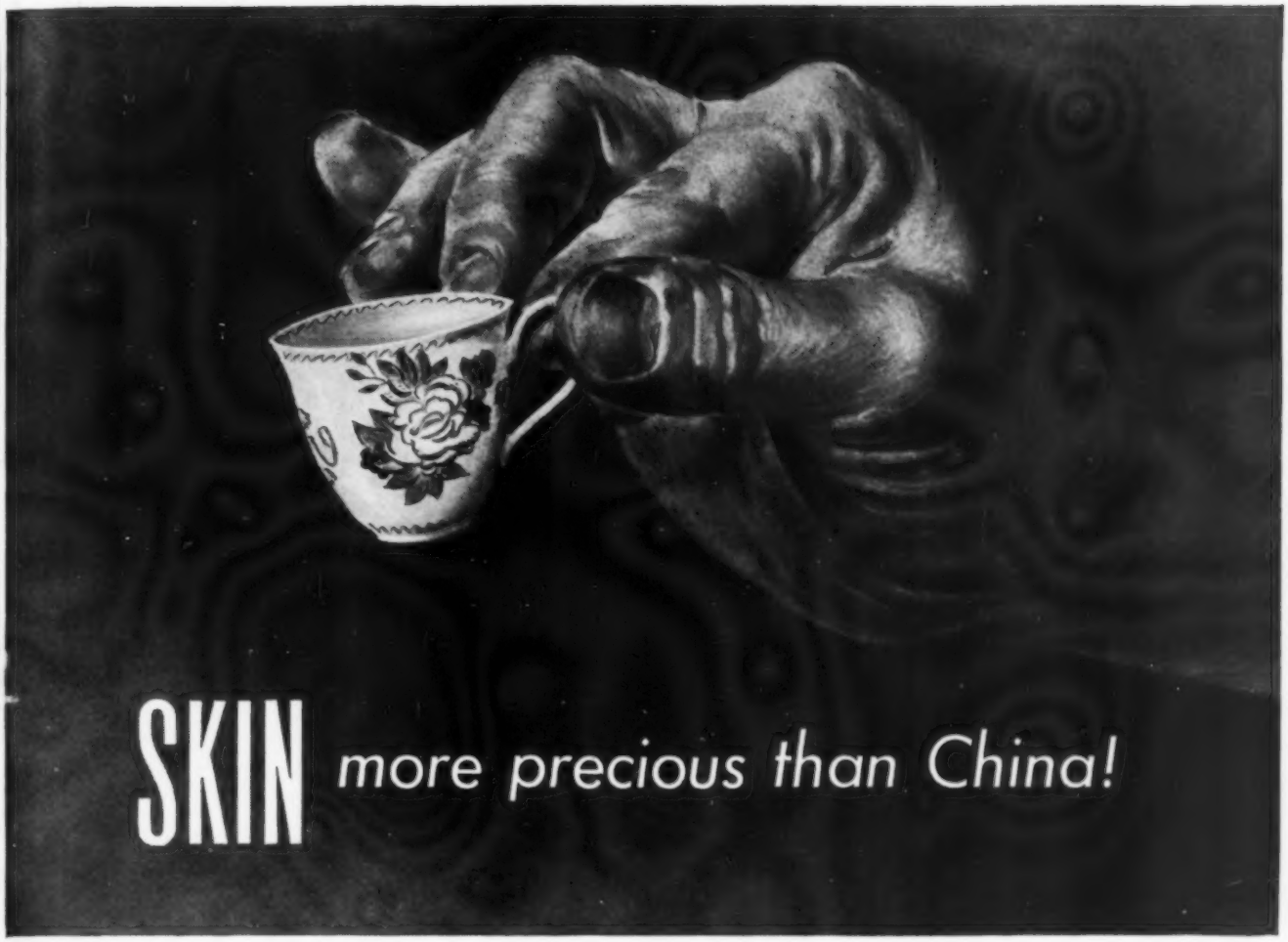


SKIN *more precious than China!*

They're more precious to industry than all the china in the universe. But like china, workers' hands are readily vulnerable to damage. Skin-injuring industrial operations and chemical irritants in your plant see to *that!*

While you can't always avoid exposure to these dangers, you *can* help safeguard skin against the ailments caused by them. Simply have your workers gently rub the proper West Protective Cream on their skin before they start work. Thus, they are assured of *safe, smooth, lasting protection.*

Since they are scientifically prepared, industry everywhere finds West Protective Creams effective precautions against nearly every dermatitis hazard that comes to mind. These creams come in six different types—and either penetrate the skin or remain on the surface—according to the special type of protection required.

To keep your workers safer on the job—and production efficiency up—consult one of almost 500 trained West Representatives from coast-to-coast. He's fully qualified to explain the advantages of these highly effective West Protective Creams.

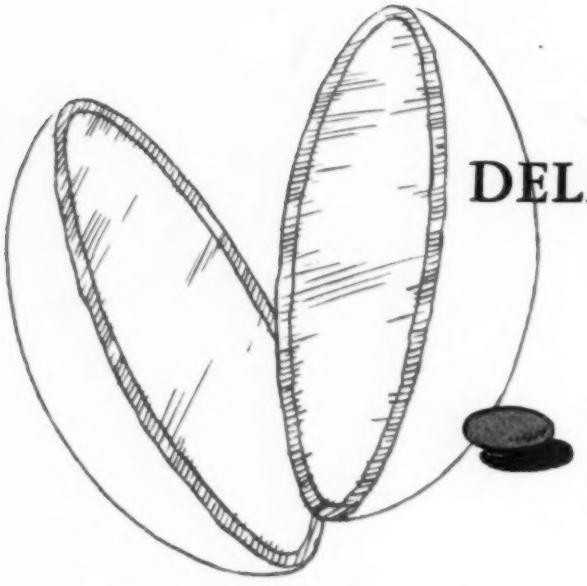
Send for Free Chart

PRODUCTS THAT PROMOTE SANITATION

WEST DISINFECTING Company

42-16 West Street, Long Island City 1, N. Y.

PYRIBENZAMINE *in a NEW form . . .*



DELAYED ACTION
TABLETS

FOR NIGHT-LONG ALLERGIC RELIEF

Many allergic patients may now receive symptomatic relief throughout the night. Delayed action tablets of Pyribenzamine are protected by a special coating so that the drug is not released for absorption until approximately the time an uncoated tablet ceases to be effective (4 to 6 hours). Sufferers from hay fever, urticaria, or atopic dermatitis can usually obtain night-long relief by taking one uncoated tablet of Pyribenzamine with one delayed action tablet at bedtime.

Pyribenzamine; scored tablets 50 mg., elixir 5 mg. per cc. (Council Accepted)

- Pyribenzamine delayed action tablets 50 mg. (Not Council Accepted)

Ciba

PYRIBENZAMINE (brand of tripelennamine) Trade Mark Reg. U.S. Pat. Off.

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